

COOKIA

Journal of the Wellington Shell Club, New Zealand

VOLUME 21, NOVEMBER 2009



MICROMOLLUSCS AT ISLAND BAY

NZ SHELL COLLECTING ADVENTURE

INTERESTING FINDS AROUND WELLINGTON

ORIENTAL BAY INTERLUDE

SHELLS FROM MAKETU BEACH

EARLY SHELL COLLECTORS IN JAMAICA

Editor's Choice



Zygochlamys delicatula (Hutton, 1873) 57mm – Selwyn Bracegirdle collection.

Cookia Volume 21, November 2009

© Wellington Shell Club 2009

ISSN-1171-140X

FRONT COVER PHOTO:

Two views of the solid, calcareous (shelly; made of calcium carbonate), operculum which closes the aperture of *Cookia sulcata* (Gmelin, 1791) so effectively. The interior (top view) is covered with a thin, spirally coiled, horny surface which is attached to the foot of the animal; the exterior displays a large and distinctive ridge.

From a specimen collected at Green Point, New Zealand by Selwyn Bracegirdle.

Contents

Cookia Volume 21, 2009

	PAGE
MICROMOLLUSCS AT ISLAND BAY 24 YEARS ON by Mary Agnes Wotton	2-3
MORE SPECIES FROM ISLAND BAY by Jill Burnett	4-5
SCUTUS BREVICULUS AT LYALL BAY by Mary Agnes Wotton	5
NEW ZEALAND SHELL COLLECTING ADVENTURE by Ken Piech	6-15
CYMATIUM PARTHENOPEUM by Pat Lakeman	16-17
A FAMILIAR FACE AT THE 2009 NZ SHELL SHOW by Kris Woods	17
SHELL CLUB TRIP TO CAPE CAMPBELL AND MARFELLS BEACH by Pat Lakeman	18
ORIENTAL BAY INTERLUDE by Jill Burnett	19
SHELLS FROM MAKETU BEACH by Ian Townsend	20
NOTES ON NEW ZEALAND COLLECTED SPECIES various contributors	21-22
INTERESTING FINDS AROUND WELLINGTON by Jenny Raven	22
EARLY SHELL COLLECTORS IN JAMAICA by Mary Agnes Wotton	23-26

Editorial

The main event in 2009 for shell collectors in New Zealand was the Shell Show held in Auckland over the weekend of 27-29 March. A number of Wellington Club members attended and it was a pleasure to catch up with people from Auckland, Whangarei, Whakatane, Australia, Brazil and elsewhere.

A special thank you to the several contributors to this issue. Without your help there would be no *Cookia*.

It has been interesting to read of club member's exploits and observations. I am building up a list of places I want to visit around New Zealand that I haven't been to before. My expectation for great shell finds continues to grow with each issue of *Cookia* - I hope I won't be too disappointed in the coming years as I search these mouth-watering locations.

The Wellington Shell Club will soon begin planning for the National Shell Show in Wellington early 2011.

As the next year unfolds, please bring to my attention any interesting finds and observations so they can be shared in our next issue in 2010.



Micromolluscs at Island Bay 24 years on

by Mary Agnes Wotton

In March 1973 Wellington Shell Club held its first field trip to Island Bay led by Frank Climo. This was very well attended and the results of species collected from under rocks were recorded in Frank's article in the Club Bulletin of March 1973. This list included some micromolluscs. Minute species from weed washing and brushed from undersides of rocks at Island Bay in April 1973 were also listed by Bruce Marshall in the Bulletin of February 1974. Three further field trips to Island Bay's shoreline were held by the Club, two in 1981 (September and October) reported in Cookia and another trip on March 13, 1983. A limited number of micromolluscs were recorded from the 1981 trips. No further field trips were held here until March 24th 2007 when one was scheduled for that afternoon as there was a good low tide forecast. Since it had been such a long time since a field trip had been held in this area, I volunteered to be the leader, especially because of my interest in micromolluscs. However only Jill Burnet and myself turned up on the day as compared with 20 members in 1973.

It was a very good low tide, -0.62 and the late afternoon timing was also suitable. Fortunately the weather was also ideal with very little wind. I had decided not to collect from weed washings as that usually turned up far more shells than I wanted. The area chosen was at the western end between Owhiro Bay, just past the Dive Shop, and the beginning of Island Bay beach. There were two sub-areas: tide pools with small rocks to turn over towards the stretch of sandy beach and, towards Owhiro Bay, a small rock-strewn cove below a surrounding low concrete wall. This area was particularly sheltered from heavy seas.

The pools towards the beach yielded several species brushed from the

undersides of stones and rocks with a small watercolour paintbrush and transferred to a wide mouth glass tube in which I had a little seawater. However, none of them were abundant. Here were *Dentimargo cairoma*, *Herpetopoma bella*, *Borniola reniformis*.

The small cove below the concrete wall had very low water as the pebbly foreground in the photograph is usually covered when the tide is in. Here were *Eatoniella olivacea*, *Pisinna zosterophila*, *Rissoina chathamensis*, *Paxula paxillus* (which seemed to prefer being under clay bricks, several of which were scattered here among the stones), *Anabathron hedleyi* abundant under almost every stone which I turned over and *Zalipais lissa* (uncommon). *Notoacmea elongata* were also numerous. Due to the minute size of some of the species, it was impossible in many cases to see what I had actually collected until viewed under the microscope!

Heading back to the car, I somehow tripped and my glass tube went flying, smashed into pieces among the stones near the car. Jill and I hurriedly went down to try and retrieve any that we could actually see so no doubt the most minute ones were lost.

On October 12 with a tide of -0.31, not very low but excellent weather, Pat Lakeman and myself headed out to Island Bay again to check out the small cove below the concrete wall. Here Pat found *Atalacamea fragilis* on the undersides of smooth stones quite near the highest point of the tide. This was obviously the egg-laying season as almost every stone and rock we turned over displayed beautiful patterns of egg cases in various colours. Cominellas were abundant and even some of the starfish were laying eggs. Species found included *Eatoniella lampra*, *Eatoniella pfefferi*, *Liotella polypleura*, and a juvenile *Eulima perspicua* not previously recorded in the Wellington Shell Club Lists.

Taking further advantage of the low tides at that time of the year, I went out again on October 26 which had a low of -0.54 at 10:51. This time I collected at the eastern end of Island Bay, past the fish shed (now the Island Bay Marine Centre) and below the car park beside the "Island Bay" sign. This was where the first Island Bay field trip of the Club was held among the rocks in March 1973. I recall the channels cut into the rocks but not much else as I was still very new to Wellington's coastline. The best collecting place was



Eastern end of Island Bay.

almost directly below the car park where there were many loose rocks to turn over. Most species seemed to prefer smoother rocks and it was also easier to see them. The most abundant species collected were *Sinezona brevis* and *Zalipais lissa*. They seemed to prefer this area rather than the western end where numbers were less or absent. Two specimens of *Austromitra rubiginosa* were found here.

My final trip for 2007 was on Oct. 30 with a low tide -0.60 at 15:17. I went first to the eastern end this time wandering over the entire rocky area almost to Houghton Bay but the rocks that I examined in the small pools did not yield anything. So it was back to my first area where again several species were found including *Eatoniella pfefferi*. This small area is somewhat sheltered as it is surrounded by large rock outcrops.

To complete my goal of a two-year survey of Island Bay micromolluscs, I once again went to both areas on 9th March 2008, as the tide was lower than forecast for later in the month, -0.42. Overall it was disappointing, especially the western end below the concrete wall. There were not many of the larger stones and the small ones were mostly bare underneath except for very nice specimens of *Notoacmea elongata*. An offshore wind also created ripples which made it somewhat difficult to spot likely stones to turn over. There were no additional species to add to the 2007 list. At the eastern end, however, there were several juvenile and young adult specimens of *Atalacmea fragilis* which had not been observed there in October 2007.

I was unable to return to both areas in October 2008 as the Taputeranga Marine Reserve had come into effect on 7 September prohibiting collection of any live shells from Princess Bay to the Old Quarry west of Owhiro Bay. For live collecting in a marine reserve, a permit form has to be obtained from DOC then local Iwi approached for their permission and then back to DOC to complete the process which would take approximately two months. So

unfortunately my two-year survey was not completed.

Frank Climo's list included the following small species: gastropods: *Suterilla neozelanica*, *Leuconopsis obsoleta*, *Risellopsis varia*, *Herpetopoma bella*, *Merelina lyalliana*,

Dentimargo cairoma, *Evalea liricincta*, *Thoristella chathamensis*, *Subonoba fumata*, *Rissoina chathamensis*, *Paxula paxillus*, *Liracraea odhneri*, *Austromitra rubiginosa*, and *Chemnitzia* sp. Bivalves: *Lasea rubra hinemoa*, *Lasea maoria*, *Myllita stowei*, and *Borniola reniformis*.

Comparison with list of minute species collected at Island Bay from under surfaces of rocks in April 1973 by Bruce Marshall:

SPECIES	Apr. 1973	Mar. 2007	Oct. 2007	Mar. 2008
<i>Sinezona iota</i>	2	None	None	None
<i>Sinezona brevis</i>	C	Possibly lost	VC	6
<i>Incisura rosea</i>	C	None	None	None
<i>Thoristella chathamensis</i>	1	None	4	None
<i>Herpetopoma bella</i>	C	5	4	None
<i>Liotella polypleura</i>	C	None	5	None
<i>Zalipais lissa</i>	C	2	C	7
<i>Eatoniella atropurpurea (minutocrassa)</i>	C	None	None	None
<i>Eatoniella delli</i>	None	C	None	None
<i>Eatoniella dilatata</i>	None	3	1	None
<i>Eatoniella lampra</i>	None	2	3	None
<i>Eatoniella limbata</i>	None	None	None	2
<i>Eatoniella olivacea</i>	None	C	2	None
<i>Eatoniella mortoni</i>	None	None	1	None
<i>Eatoniella pfefferi</i>	1	None	1	None
<i>Eulima perspicua</i>	None	None	1 (juv.)	None
<i>Melanella</i> sp.	None	None	1	None
<i>Tubbreva exigua</i>	C	None	2	None
<i>Anabathron hedleyi</i>	2	VC	C	C
<i>Pisinna minor</i>	None	None	3	None
<i>Pisinna rekohuana</i>	None	None	3	None
<i>Pisinna zosterophila</i>	None	C	C	None
<i>Merelina lyalliana</i>	1	None	None	1
<i>Pusillina hamiltoni</i>	None	2	2	1
<i>Pusillina infecta</i>	5	None	None	2
<i>Rissoina chathamensis</i>	2	C	None	None
<i>Suterilla neozelanica</i>	None	None	7	None
<i>Larochella alta</i>	C	None	None	None
<i>Larochella</i> n.sp. aff. <i>toreuma</i>	1	None	None	None
<i>Zerotula</i> n. sp.	3	None	None	None
<i>Paxula paxillus</i>	None	6	1	1
<i>Strombiformis</i> cf. <i>paxillus</i>	9	None	None	None
<i>Dentimargo cairoma</i>	5	6	None	None
<i>Orbitestella parva (vera)</i>	11	None	1	None
<i>Orbitestella toreuma</i>	2	None	None	None
<i>Rissoella cystophora</i>	C	11	None	None
<i>Rissoella elongatospira</i>	C	None	None	None
<i>Rissoella micra</i>	None	None	2	None
<i>Rissoella rissoaformis</i>	1	None	None	None
<i>Austromitra rubiginosa</i>	None	2	None	2
<i>Skenella spadix</i>	None	1	None	None
<i>Eatonina atomaria</i>	None	None	1	None
Bivalves				
<i>Cardita aoteana</i>	1	None	None	None
<i>Borniola reniformis</i>	6	None	3	observed
<i>Lasea rubra</i>	None	None	1	None

C = common (more than 10) VC = very common (more than 20)

References:

- 1973 Wellington Shell Club Program
- 1973 Wellington Shell Club Bulletin No. 31: pp.5-8 "The Island Bay Field Trip of 4 March. 1973", F. M. Climo
- 1974 Wellington Shell Club Bulletin No. 32: pp.4-5 "Lists of Minute Mollusca collected at Island Bay" April 8, 1973, Bruce Marshall
- 1974 Wellington Shell Club Bulletin No. 35 pp. 2-3 "Shell Collecting localities around Wellington"
- 1981 Cookia Vol. 4 No. 2: p. 14
- 1983 Wellington Shell Club Newsletters February & April

More species from Island Bay

by Jill Burnett

I know that you all read your *Cookias* very thoroughly, so you will remember that in the last issue, in my article "Records Broken on Club Outings", I mentioned that the results for Island Bay were still to come. This was because I knew that Mary Agnes Wotton, who was compiling a list of Island Bay micro mollusca, was intending to try collecting at different times of the year to see if that yielded different species, and it seemed logical to publish the two articles together. As it happened, I had occasion to be in Island Bay a couple of times in 2008, and was able to sneak an hour or so on the beach, and add to the list we started on the club outing on 24 November 2007. On that day, Jenny Raven was

with me, and she explored the low tide line and noted what was living there while I poked around among the wash-ups higher up the beach. We looked at both sides of the bay, and recorded these separately. When I went out in May 2008, I was by myself, with somewhat limited mobility, using public transport, and with no idea beforehand of what the tides were doing, so all my collecting was done on the most accessible parts of the shoreline, and nearly all comprises dead shells from wash-ups. I chose to look on the west side of the bay, as this had seemed the more profitable on the club outing. On my second trip, there was a fresh wash up of seaweed, and I was encouraged by finding

Benhamina obliquata amongst it almost straight away. Both Mary Agnes Wotton and I had intended to go out to Island Bay again in spring of 2008, but we weren't able to arrange this before the marine reserve came into force. This preamble is supposed to explain that the lists for May 2008 are just an indication of what a beachcomber might expect to see washed up on the Island Bay shoreline. For a more detailed and far more scientific study of the molluscs from Wellington's south coast, read Bruce Marshall's article in *The Taputeranga Marine Reserve*. As with the article in last year's *Cookia*, I have noted the species not shown for the area in *Cookia* Volume 14 as 'new club record'.

		East 24/11/07	West 24/11/07	West 17/5/08	West 31/5/08
Polyplacophora					
<i>Eudoxochiton nobilis</i>					D
<i>Chiton glaucus</i>		L	L	D	D
Bivalvia					
<i>Barbatia novaezelandiae</i>	new club record			D	
<i>Mytilus galloprovincialis</i>	new club record		D		D
<i>Perna canaliculus</i>	new club record			D	D
<i>Modiolus areolatus</i>	new club record				D
<i>Modiolarca impacta</i>	new club record				D
<i>Saccostrea glomerata</i>	new club record				D
<i>Talochlamys zelandiae</i>	new club record				D
<i>Cardita aoteana</i>					D
<i>Paphies australis</i>	new club record				D
<i>Paphies subtriangulata</i>	new club record			D	D
<i>Macomona liliana</i>	new club record	D	D	D	D
<i>Pseudarcopagia disculus</i>					D
<i>Gari stangeri</i>	new club record			D	D
<i>Protothaca crassicosta</i>		D		D	D
<i>Tawera spissa</i>	new club record			D	
<i>Corbula zelandica</i>	new club record				D
Gastropoda					
<i>Cellana denticulata</i>		L	L	L	L
<i>Cellana ornata</i>	new club record	L		D	D
<i>Cellana radians</i>		L	L	L	L
<i>Cellana stellifera</i>				D	
<i>Radiacmea inconspicua</i>				L	
<i>Patelloida corticata</i>				D	D
<i>Haliotis iris</i>		L	D	D	D
<i>Haliotis australis</i>		L	D	D	D
<i>Scutus breviculus</i>			D		
<i>Tugali suteri</i>	new club record			D	D
<i>Cantharidella tessellata</i>					D
<i>Cantharidus opalus</i>			D	D	D
<i>Cantharidus purpureus</i>	new club record			D	D
<i>Diloma arida</i>			D	D	
<i>Diloma nigerrima</i>		L		D	
<i>Diloma bicanaliculata</i>	new club record		D		D
<i>Diloma subrostrata</i>	new club record			D	

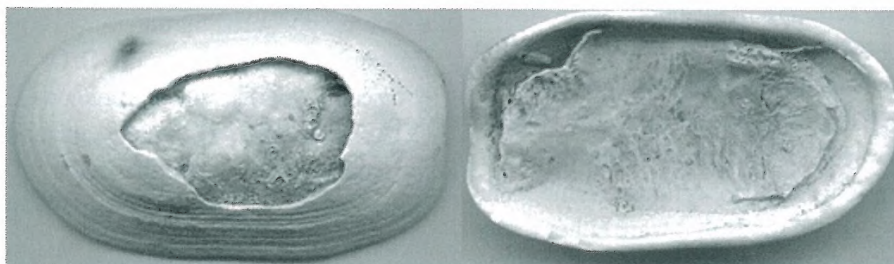
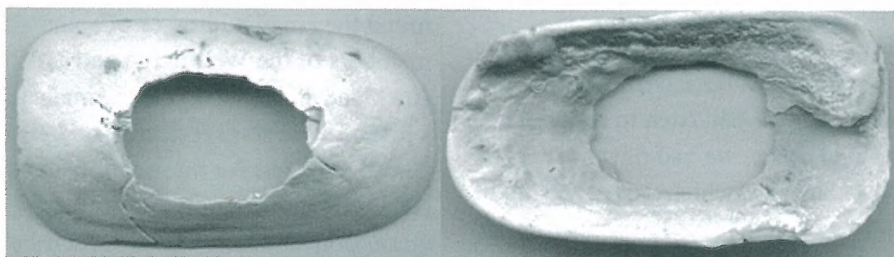
		East 24/11/07	West 24/11/07	West 17/5/08	West 31/5/08
<i>Diloma zelandica</i>	new club record		D	D	D
<i>Diloma aethiops</i>		L	L	L	L
<i>Micrelenchus dilatatus</i>				D	
<i>Trochus viridis</i>	new club record		D		D
<i>Cookia sulcata</i>	new club record		D	D	D
<i>Lunella smaragda</i>		D	L	D	D
<i>Zeacumantus lutulentis</i>			D	D	
<i>Zeacumantus subcarinatus</i>			D	D	D
<i>Nodilittorina antipodum</i>		L	L	L	L
<i>Nodilittorina cincta</i>				L	L
<i>Sigapatella novaezelandiae</i>	new club record	D	D	D	D
<i>Tanea zelandica</i>	new club record			D	D
<i>Argobuccinum pustulosum tumidum</i>	new club record		D		
<i>Dicathais orbita</i>			D	D	D
<i>Haustrum haustorium</i>		L	D	D	D
<i>Haustrum scobinum</i>	new club record		L		D
<i>Buccinulum linea</i>	new club record		D		D
<i>Austrofuscus glans</i>	new club record				D
<i>Cominella adpersa</i>	new club record			D	
<i>Cominella maculosa</i>		D	L	D	D
<i>Cominella virgata</i>	new club record	L	L		
<i>Penion sulcatus</i>	new club record			D	
<i>Amalda mucronata</i>	new club record			D	D
<i>Trimusculus conicus</i>	new club record			D	D
<i>Benhamina obliquata</i>			D		D
<i>Siphonaria australis</i>			L	L	D
Cephalopoda					
<i>Spirula spirula</i>	new club record				D
Brachiopoda					
<i>Notosaria nigricans</i>				D	D
<i>Terebratella inconspicua</i>				D	D

Scutus breviculus at Lyall Bay

by Mary Agnes Wotton

Lyall Bay beach beside the grassy reserve next to the houses has always been a good place to find *Scutus* washed up after heavy seas and if you're lucky some of them will be good specimens. The majority however, no matter their size, always have a large broken hole in the centre of the shell.

Earlier this year Pat Lakeman and myself went out to Lyall Bay after two days of heavy seas and sure enough there were many *Scutus* scattered along the beach, most with holes. The interior of several of them had another thinner, irregular layer, sometimes not completely adhered to the original shell and in some cases the hole was not broken through but was only on the outer layer of the shell. It was almost



as though, at some time the shell had been broken at its highest point in the centre while the animal was still alive

and it had built another layer to close the hole.

New Zealand Shell Collecting Adventure

American Shell Collectors Visit Middle Earth (There and Back Again) or Friendly People, Beautiful Country and Great Shells.

by Ken Piech

Like many other U.S. shell collectors, my wife, Alice, and I started our shell collecting avocation during a family summer vacation. In 1987 we were with our four young children on Sanibel Island, Florida and found many beautiful shells. Several months later we purchased masks, fins and snorkels to take with us on our 10th wedding anniversary trip to the British Virgin Islands in the Caribbean. We collected many new (for us) shells, while we enjoyed the warm, clear tropical water with beautiful coral reefs and colorful fish. **We were hooked!** Since then, we have collected seashells in many places using a variety of methods. Although much of our shell collecting has been in southern Florida and the Caribbean, we have also collected in Brazil, West Africa, panamic Central America and many Indo-Pacific islands.

After more than twenty years of serious shell collecting, we had visited a number of great shelling locations, but had also developed a “shelling destination wish list”, places where we want to collect but have not yet visited. Although we had been to Australia several times, we had never visited New Zealand, which was at the top of our “wish list.” We knew little about this English-speaking, island nation in the southern hemisphere, only that it is relatively near Australia, has active volcanoes and has many endemic species of flora and fauna, including some flightless birds. Our ever-growing shell collection contained only a few NZ shells that were either trades or gifts. Perhaps the strangest one was *Struthiolaria papulosa* (Martyn, 1784), for which I had traded a large, chocolate-colored *Typhis grandis*

A. Adams, 1855 that we had collected by dredging in Panama. Although this trade now seems a little one sided, this unique NZ shell pricked our curiosity about New Zealand and its many endemic seashells.

In early 2008 a combination of events gave us the opportunity to visit New Zealand, not just for a few weeks, but for 5-6 months. I was asked to work as a pathologist at Hutt Hospital in Lower Hutt, a city just north of Wellington. In addition to the remuneration, the hospital provided us round trip airplane tickets, a nice car to use and a small cottage one block from the eastern shore of Wellington Harbour in the delightful small community of Eastbourne. Having most of the logistics arranged for us, Alice and I focused on making the necessary arrangements to leave our home and country for our extended stay in New Zealand.

As we prepared for our time in New Zealand, I searched the internet and found the email addresses of some members of the Wellington and Auckland shell clubs. I sent emails to a few of these shell collectors and also posted a request for information about NZ shell collecting on the internet discussion forum/listserve, Conch-L, www.conchologistsofamerica.org/conch_L, which is sponsored by the Conchologists of America (COA), www.conchologistsofamerica.org/home/. COA is the main, national organization for amateur shell collectors in the United States. In addition to providing an avid shell collector a venue to discuss shells, Conch-L provides a forum to share all types of information concerning seashells, molluscs and shell collecting. I received many kind,

informative responses, especially from the NZ shell collectors. Prior to our June departure for New Zealand, we were able through trade to acquire a copy of Powell's New Zealand Mollusca, 1979, which we brought with us to New Zealand. Although now 30 years old, it is still considered a great general reference on New Zealand molluscs, though the nomenclature has become somewhat outdated.

I arrived in Wellington in early June at the beginning of New Zealand's winter. For family reasons Alice came in early July. Although the temperature in Eastbourne never got below 0°C, the frequent 25, 40 and 60 kph winds made it feel much colder. We quickly learned that most homes in New Zealand do not have central heating and have windows with only single panes of glass. As such, our home was fairly cold for much of our first several months in New Zealand. Although the weather in June, July and August was not ideal for sightseeing, the frequent “southerlies” with their strong wind and waves brought to the Eastbourne beaches a number of interesting seashells, many still containing the dead or dying molluscs. After the storms the gulls and other shore birds feasted well for days. The Eastbourne beaches consist mostly of small pebbles with some sandy areas increasing near and below the low tide line. Rocky points separate the coast into many small bays, such as Lowry Bay, York Bay, Days Bay and Rona Bay. Our home was just one block from Rona Bay. We frequently walked the beaches and found many shells, either empty or with dead/dying animals.



Rona Bay Beach looking north



Rona Bay Beach, looking south

Many of these gastropods and bivalves were beach worn specimens in fair-good condition; others were in excellent shape. Some of our best *Pecten novaezelandiae*, *Zenatia acinaces* and *Panopea zelandica* I collected near the end of a storm when the rain was dissipating. Although the collecting was wet and cold, I was the first person

on the beach and was even ahead of most of the shore birds, although I had to fight one for a nice *Pecten novaezelandiae* at the water's edge. During this very productive shelling afternoon Alice stayed in our warmer home. When I returned several times to get warm and change into dry clothes, she made disparaging remarks

suggesting that even the birds were smart enough to stay out of the bad weather. Although the cold wind and rain reduced the comfort of shell collecting, it also reduced the competition and thereby increased the number of nice shells that I found.

Eastbourne beaches gastropods

First row, left to right: *Cookia sulcata* (Lightfoot, 1786), *Argobuccinum pustulosum tumidum* (Dunker, 1862), *Haliotis australis* Gmelin, 1791 (2), *Haliotis iris* Gmelin, 1791. **Second row:** *Scutus breviculus* (Blainville, 1817), *Maoricolpus roseus roseus* (Quoy & Gaimard, 1834), *Austrofuscus glans* (Röding, 1798), *Cominella adpersa* (Bruguière, 1789) (2), *Cominella maculosa* (Martyn, 1784) (2), *Cominella virgata virgata* H. Adams & A. Adams, 1853 (2), *Buccinulum linea* (Martyn, 1784) (2), *Buccinulum species* (2). **Third row:** *Haustrum haustorium* (Gmelin, 1791) (2), *Xymene ambiguus* (Philippi, 1844) (2), *Haustrum lacunosum* (Bruguière, 1789) (2), *Haustrum scobinum* (Quoy & Gaimard, 1833), (2), *Sigapatella novaezelandiae* (Lesson, 1830) (2), *Lunella smaragda* Gmelin, 1791 (2).



Fourth row: *Calliostoma punctulatum* (Martyn, 1774), *Trochus viridis* Gmelin, 1791, *Cantharidus opalus* (Martyn, 1784), *Cantharidus purpureus* (Gmelin, 1791), *Trichosirus inornatus* (Hutton, 1873), *Siphonaria australis* Quoy & Gaimard, 1833 (2), *Cellana ornata* (Dillwyn, 1817), *Cellana radians* (Gmelin, 1791), *Cellana denticulata* (Martyn, 1784), *Haliotis virginea virginea* Gmelin, 1791.

Eastbourne beaches bivalves



Top Row, left to right: *Panopea zelandica* (Quoy & Gaimard, 1835), *Pecten novaezelandiae* Reeve, 1852, *Perna canaliculus* (Gmelin, 1791), *Tucetona laticostata* (Quoy & Gaimard, 1835). **Second Row:** *Zenatia acinaces* (Quoy & Gaimard, 1835), *Myadora striata* (Quoy & Gaimard, 1835), *Gari lineolata* (Gray, 1835), *Gari stangeri* (Gray, 1843). **Third Row:** *Atrina zelandica* (Gray, 1835), *Mytilus galloprovincialis* Lamarck, 1819, *Aulacomya maoriana* (Iredale, 1915), *Modiolarca impacta* (Hermann, 1782), *Solemya parkinsonii* E.A. Smith, 1874, *Soletellina nitida* (Gray, 1843), *Paphies australis* (Gmelin, 1791), *Pseudarcopagia disculus* (Deshayes, 1855). **Fourth Row:** *Austrovenus stutchburyi* (Wood, 1828), *Protothaca crassicosta* (Deshayes, 1835), *Ruditapes largillierti* (Philippe, 1849), *Ostrea chilensis* Philippi, 1844, *Tawera spissa* (Deshayes, 1835), *Dosinia subrosea* (Gray, 1835).



Talochlamys zelandiae (Gray, 1843)

On the Eastbourne beaches we also learned to look for shells in the orange sponge that washed up after the storms. The sponge often contained dead or dying *Talochlamys zelandiae* of many different colors. The most common colors were varying shades of purple and brown. Orange was less frequent, and yellow was rare. A yellow *T. zelandiae* in good condition is an excellent find. Some of the *T. zelandiae* exhibited surface deformities, which seemed to be due to the confines of their sponge habitat. In addition to these nice pectens, the sponge contained a fair number of *Modiolarca impacta* and a few *Hiatella arctica*. In one sponge there was a *Trichosirus inornatus*. The Eastbourne beaches are rich with shells, especially after a storm.

Since we are avid snorkelers and certified scuba divers, Alice and I brought with us our snorkeling gear and some scuba diving equipment. However, during most of our time in New Zealand, the water was just too cold. During the months of June, July and August, the Wellington Harbour water temperature ranged from 10 to 13°C (50-55°F), which is too cold, even with a thick wet suit. If our time in New Zealand had been longer, we most probably would have learned to use dry suits, but that is another story. So, despite the rich molluscan fauna in Wellington Harbour and the nearby coastline, our only means to collect shells was to do so by searching the beach for washed up specimens, which is not the best means to find high quality shell specimens. Although we received reports of *Calliostoma tigris* living in Wellington Harbour at 25-35 meters, we never saw a washed up specimen on the harbour beaches.

I had been in New Zealand only a few weeks when I attended my first Wellington Shell Club meeting, held at a club member's home. In my car I drove on the left or "wrong" side of the road following another club member up and down many narrow, winding roads. When we finally arrived, I was just glad that I had not had an accident. Many people attended this meeting, including several with whom I had exchanged emails prior to coming to New Zealand. I especially enjoyed the time of "show and tell", when members would report on their recent shell collecting experiences and show the shells that they had collected. This was an excellent way for me to see some of the local shells and learn about the best shell collecting spots. These include Moa Point, Lyall Bay and Owhiro Bay, which are south of Wellington; Green Point and Porirua Harbour, which are north of Wellington; and Paraparaumu and Waikanae, which are on the Kapiti Coast, even further north of Wellington.

During the next several months Alice and I spent many weekends enjoying the intertidal collecting at these

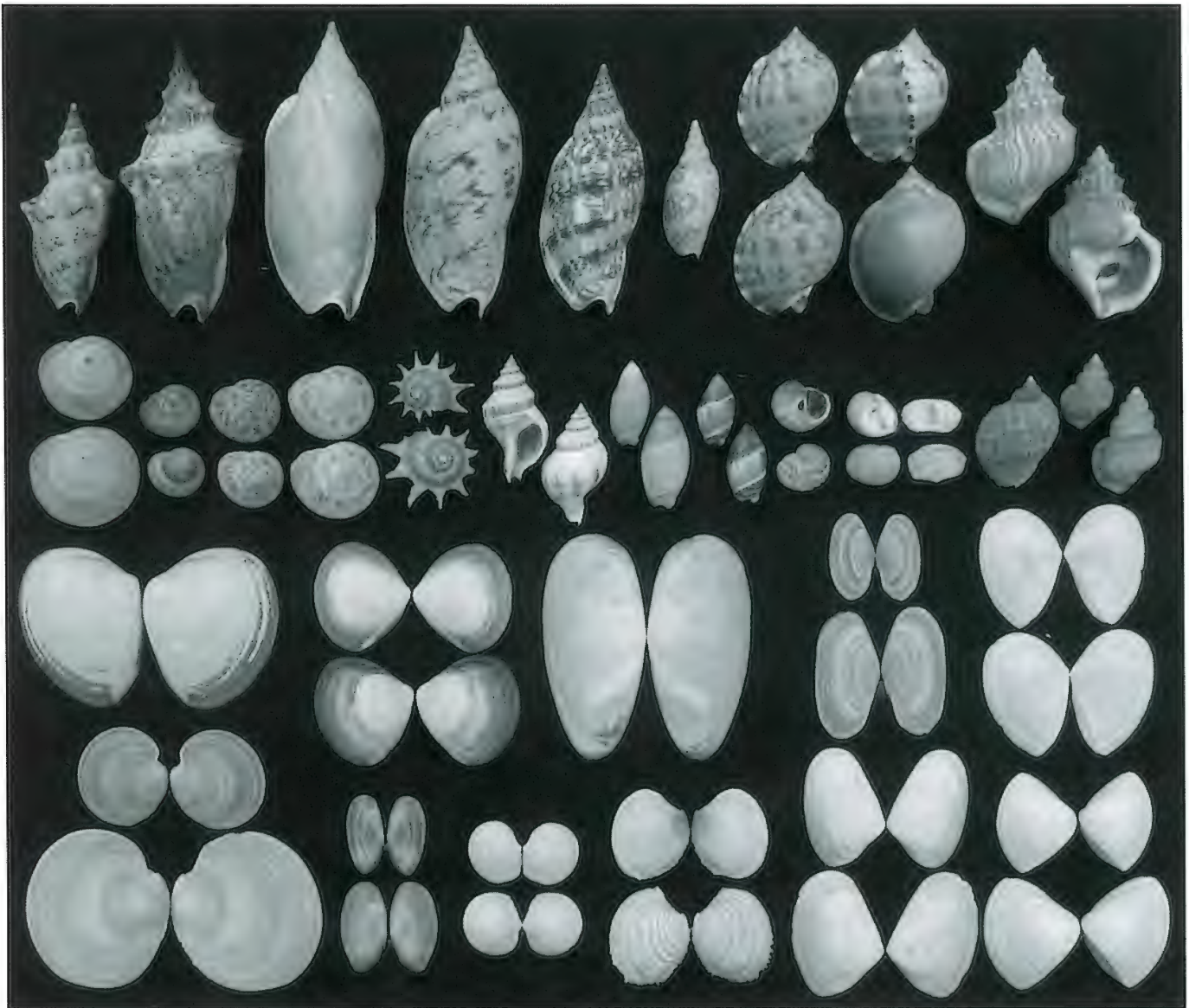
locations, often with other members of the Wellington Shell Club, who kindly shared their time, knowledge and shells. Most of the shells we found at Moa Point and Lyall Bay were similar to those that we found on the Eastbourne beaches, although many of them were in better condition. At Moa Point we did find a few live *Dicathais orbita* and *Atalacmea multilinea* as well as a few dead *Xymene traversi*. At Lyall Bay we also found *Diloma bicanaliculata* and one *Nerita atramentosa*. At Owhiro Bay in August we found *Tugali elegans*, *Patelloida corticata* and *Marinula filholi*. Unfortunately, Owhiro Bay became a marine reserve on 7 September 2008, and shell collecting is no longer permitted there. Only once did Alice and I visit Green Point, a strikingly beautiful (and very green) promontory extending into the Tasman Sea towards Mana Island. Although the approximately one km hike from the car park took us down a steep cliff and along beaches composed almost entirely of rocks and boulders, the beauty of Green Point more than justified the effort to get there. For shell collectors, Green Point is probably best known for the occasional *Mitra carbonaria* that is found there. The afternoon we visited Green Point there were numerous small fragments of brown, wood debris in the water, which made more difficult our search for the uncommon, brown *Mitra carbonaria* of similar size. Although Alice and I did not find any mitres, we did find a number of nice *Tucetona laticostata* and *Haliotis australis* and a few *Modelia granosa* and *Dendropoma lamellosa*. At the end of the afternoon our friendly guide, Alan Smillie, gave us a *Mitra carbonaria* that he had found on a previous visit to Green Point. Although such generosity was typical of many New Zealand shell collectors, it was nevertheless most appreciated.

Alice and I visited several locations in Porirua Harbour and found a number of shells, including *Alcithoe arabica* typical form, *Zeacumantus lutulentus*, *Cominella adpersa*, *Cominella*

glandiformis, *Buccinulum linea*, *Amphibola crenata*, *Haminoea zelandiae*, *Cabestana spengleri*, *Sigapatella tenuis*, *Maoricolpus roseus roseus*, *Atrina zelandica*, *Talochlamys zelandiae*, *Peronaea gaimardi* and *Macomona liliana*. Perhaps the most fun we had was finding a way to locate the live *Alcithoe arabica* when they were buried in sand and not making trails. Unfortunately, many of the shells in Porirua Harbour have a dark brown (iron?) staining, which makes them less attractive and more difficult to clean. However, this is the only place where we found *Haminoea zelandiae*, a most delicate and attractive shell, since they were generally spared the brown staining.

The Kapiti Coast is another rich shell collecting area. In addition to some of the shells previously mentioned, Alice and I found many different shells along the Kapiti Coast, especially during a good "wash-up" at Paraparaumu and/or Waikanae Beach. When the weather was nice, walking the beach was so pleasant. There often were many people enjoying the beach, including kite surfers and sail cart racers. When the weather was fair to poor, there were relatively few other people on the beach. Then there was the afternoon that I was enjoying a good wash-up at Waikanae Beach. At first, the wind was 25-30kph coming from the Tasman Sea, but within just an hour or two, the wind had increased to 60-80kph. A few times I seriously thought that the wind might very well blow me over. On another occasion I tried to cross the relatively narrow "stream" that separates the beaches of Paraparaumu and Waikanae. Although the water is quite shallow on the Waikanae side, it is much deeper on the Paraparaumu side, as I learned when I sank into about one meter of cold water with my first step. Although I quickly climbed back out, that unpleasant surprise left me a bit cool during the rest of the afternoon's shell collecting.

Kapiti Coast shells



Top row, left to right: *Alcithoe arabica*, typical form (Gmelin, 1791) (2) {actually from Porirua Harbour}, *Alcithoe arabica f. swainsoni* Marwick, 1926 (3), *Alcithoe fusus fusus* (Quoy & Gaimard, 1833), *Semicassis pyrum* (Lamarck, 1822) (4), *Struthiolaria papulosa* (Martyn, 1784) (2). **Second row:** *Calliostoma selectum* (Dillwyn, 1817) (2), *Calliostoma punctulatum* (Martyn, 1774) (2), *Calliostoma pellucidum* (Valencienne, 1846) (2), *Calliostoma waikanae* Oliver, 1926 (2), *Astraea heliotropium* (Martyn, 1874) (2), *Austrofuscus glans* (Röding, 1798) (2), *Amalda mucronata* (Sowerby, 1830) (2), *Amalda australis* (Sowerby, 1830) (2), *Amphibola crenata* (Gmelin, 1791) (2), *Tanea zelandica* (Quoy & Gaimard, 1832) (2), *Maoricrypta monoxyla* (Lesson, 1830) (2), *Dicathais orbita* (Gmelin, 1791), *Pellicaria vermis vermis* (Martyn, 1774). **Third row:** *Mactra murchisoni* Deshayes, 1854, *Mactra discors* Gray, 1837 (2), *Resania lanceolata* Gray, 1853, *Gari lineolata* (Gray, 1835) (2), *Peronaea gaimardi* Iredale, 1915 (2). **Fourth row:** *Dosinia anus* (Philippi, 1848) (2), *Soletellina nitida* (Gray, 1843) (2), *Divalucina cumingi* (A. Adams & Angas, 1864) (2), *Circomphalus yatei* (Gray, 1835) (2), *Paphies subtriangulata* (Wood, 1828) (2), *Crassula aequilatera* (Reeve, 1854) (2).

In late August Alice joined Wellington Shell Club members Jenny Raven and Pat Lakeman for a day trip to the South Island. They took a short flight to Blenheim, rented a car and spent several hours collecting the low tide at Marfells Beach, which is on the east coast. Alice found a number of shells, many of which were new for us at the time, although their condition was only good to fair.

Marfells Beach shells

Top row, left to right: *Calliostoma tigris* (Gmelin, 1791), *Modelia granosa* (Martyn, 1784), *Argobuccinum pustulosum tumidum* (Dunker, 1862), *Haliotis iris* Gmelin, 1791. **Second row:** *Cabestana spengleri* (Perry, 1811), *Penion sulcatus* (Lamarck, 1816), *Cookia sulcata* (Lightfoot, 1786), *Haliotis virginea virginea* Gmelin, 1791. **Third row:** *Cellana flava* (Hutton, 1873), *Irus elegans* (Deshayes, 1854), *Irus reflexus* (Gray, 1843), *Barnea similis* (Gray, 1835).



In September the Wellington area weather started to become nicer. During the middle of the month, Alice and I took a four-day weekend and drove to Auckland to do some sight seeing, attend the Auckland Shell Club auction and hopefully, collect some seashells. We left after work on a Thursday and spent our first night in Taupo. Friday morning we visited Rotorua and Te Puia, a center of Māori culture and geothermal activity. This was an interesting and most enjoyable experience. During the welcoming ceremony I became an honorary chief, which apparently has had no lasting effect on my status in our family.

Through Wellington Shell Club members Alice and I were introduced to some of the Auckland Shell Club members and spent two lovely nights at the home of Heather Smith, a delightful lady, internationally known for her prize winning shell exhibits. At the auction, our host and I ended up bidding on the same lot of shells, which was the cause for some amusement and significantly increased the price of the winning bid. Afterwards, we worked things out so that she obtained the one rare shell that she wanted, and I took the rest. If only we could have known beforehand what each of us really wanted, we could have gotten the entire lot for about half the price. Such is the nature of an auction.

On our way back to Wellington, Alice and I drove along the Bay of Plenty and collected shells during two morning low tides. At Waihi Beach we found

numerous *Boreoscala zelebori*, *Zethalia zelandica* and *Maoricolpus roseus* with a few *Epitonium jukesianum* and *Zeacolpus pagoda pagoda*. At Ohope Beach we found *Struthiolaria papulosa*, *Austrofuscus glans*, *Alcithoe arabica f. swainsoni*, and *Maoricrypta costata*. In addition, we found one dead *Poirieria zelandica* at the high tide line. Although this murex was relatively small (3.5 cm), it was in excellent condition and still contained the dead animal with its operculum. Since Muricidae is one of our favorite shell families, we were most pleased to find this endemic muricid in such good condition. We spent the night at a beachfront hotel with an amazing view of the ocean from our second floor living room. We enjoyed an excellent dinner at a nearby café. Our first real excursion in New Zealand was a most delightful experience.

In mid October the Wellington Shell Club had an auction, which was a lot of fun. In addition to winning a few lots of shells, Alice and I were able to trade/sell some of the shells that we had brought with us from the United States. Thanks to the assistance of Selwyn Bracegirdle, we included in the auction the largest shell that we had brought with us from the U.S., a 17-18 inch (43-46 cm) *Triplofusus giganteus*. We then used the money to pay for some of the shells that we had "won" in the auction.

The next day Alice and I drove to Hawkes Bay and spent the night at Mahia Beach, which is at the upper end of the Mahia Peninsula. We stayed

with more gracious friends of the Wellington Shell Club, Bill and Cath Shortt. Bill enjoys living close to the ocean and collects paper nautilus (*Argonauta nodosa* and *argo*), when he is not trapping crayfish or catching gurnard. After rising early to collect the crayfish in Bill's traps, Alice and I spent most of the day collecting shells along Mahia and Oraka Beaches. We found a number of new (for us) shells, including *Semicassis labiata*, *Muricopsis octogonus*, *Paratrophon quoyi* and *Offadesma angasi*. Before we left, Bill Shortt generously gave us a nice, large *Tonna tankervillei* from a 2004 wash-up in Tolaga Bay, which is north of Gisborne.

After enjoying a pleasant dinner and hotel room in Gisborne, Alice and I drove the following day to Ohope Beach, via the Waioeka Gorge. What a scenic route with thousands of giant tree ferns along the way! We arrived at Ohope Beach for the low tide. At the western end of the beach, we waded into the water and collected on rocks some nice, large *Dicathais orbita* eating the many *Perna canaliculus*. We found some dead, crabbed *Poirieria zelandica* and one live *Buccinulum vittatum vittatum* among the rocks. We also spent some time at Coastlands (Whakatane) Beach, where we found numerous, relatively small *Struthiolaria papulosa* as well as *Alcithoe arabica*, *Cominella adspersa* and *Pellicaria vermis vermis*. A few of the small, but fully mature *Struthiolaria papulosa* were actually smaller than the largest *Pellicaria vermis vermis*.

Shells from the Bay of Plenty and Mahia Peninsula

Top row, left to right (BAY OF PLENTY): *Zethalia zelandica* (Hombron & Jacquinot, 1855) (8), *Maoricolpus roseus roseus* (Quoy & Gaimard, 1834) (5), *Boreoscala zelebori* (Dunker, 1866) (8), *Poirieria zelandica* (Quoy & Gaimard, 1833), *Maoricrypta costata* (Sowerby, 1824) (3), *Dicathais orbita* (Gmelin, 1791) (2), *Pellicaria vermis vermis* (Martyn, 1784) (2), *Struthiolaria papulosa* (Martyn, 1784) (2). **Second row:** *Alcithoe arabica* f. *swainsoni* Marwick, 1926 (2) and *Cominella adspersa* (Bruguère, 1789) (2). **(MAHIA PENINSULA):** *Semicassis labiata* (Perry, 1811) (2), *Semicassis pyrum* (Lamarck, 1822) (2), *Calliostoma pellucidum* (Valencienne, 1846), *Calliostoma tigris* (Gmelin, 1791), *Cookia sulcata* (Lightfoot, 1786) (2). **Third row:** *Penion sulcatus* (Lamarck, 1816) (2), *Muricopsis octogonus* (Quoy

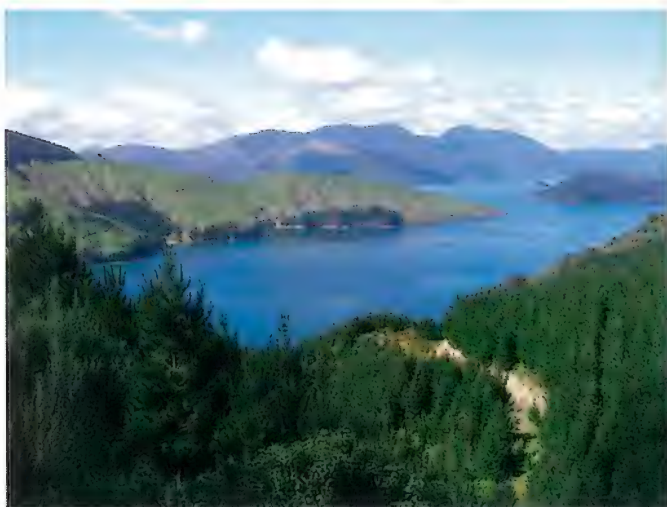


& Gaimard, 1833), *Paratrophon quoyi* (Reeve, 1846), *Amalda mucronata* (Sowerby, 1830), *Cellana flava* (Hutton, 1873) (4), *Offadesma angasi* (Crosse & Fischer, 1864), *Divalucina cumingi* (A. Adams & Angas, 1864), *Solemya parkinsonii* E. A. Smith, 1874.

At the end of the week Alice and I flew with Kris and Roger Woods on an Air New Zealand flight from Wellington to Nelson. We spent two full days experiencing the beautiful scenery of the Marlborough Sounds while we enjoyed the bucolic setting of Cissy Bay and the productive dredging of Kevin Mead. From 25-35 meters depth, we (Kevin) dredged up a number of interesting shells, which the rest of us found by searching through the dredgings on the back of Kevin's boat.

These shells included gastropods, bivalves and one Scaphopoda, *Antalis nana*. Of note, the *Austrofusus* glans were slightly larger than those found on the Kapiti coast and the Bay of Plenty. Although similar in size, the *Pellicaria vermis vermis* (and some other shells) had a thinner shell wall than those we found dead, intertidally along the Kapiti coast, the Bay of Plenty and the Auckland beaches. During brief intertidal collecting we also found *Phenatoma rosea* (a gift from Kris

Woods), *Corbula zelandica*, *Diloma bicanaliculata* and *Gari stangeri*. In addition, Kevin gave us some small, bright blue *Haliotis iris* obtained from mariculture. Could the bright blue color be due to its diet? The meat from the *Pecten novaezelandiae* sure made a nice appetizer for dinner. Many thanks to Kevin, Yvonne and John! Many thanks also to Kris and Roger for planning the trip and for being such pleasant traveling companions.



Cissy Bay, from an overlook



The four intrepid dredgers and our guide, Kevin

Shells from Cissy Bay, Marlborough Sounds

Top row, left to right: *Alcithoe arabica*, typical form (Gmelin, 1791) (2), *Alcithoe fusus* (Quoy & Gaimard, 1833), *Austrofusus glans* (Roding, 1798) (2), *Pellicaria vermis vermis* (Martyn, 1784) (3), *Struthiolaria papulosa* (Martyn, 1784) (2). **Second row:** *Amalda mucronata* (Sowerby, 1830) (2), *Aeneator otagoensis* Finlay, 1930 (2), *Poirieria zelandica* (Quoy & Gaimard, 1833) (2), *Haliotis iris* Gmelin, 1791 (2), *Sigapetalla tenuis* (Gray, 1867) (3), *Phenatoma rosea* (Quoy & Gaimard, 1833), *Diloma bicanaliculata* (Dunker, 1844) (3), *Pleuromeris zelandica* (Deshayes, 1854), *Nucula species*, *Antalis nana* (Hutton, 1873), *Corbula zelandica* Quoy & Gaimard, 1835 (2). **Third row:** *Talochlamys gemmulata* (Reeve, 1853) (3), *Pratulum pulchellum* (Gray,



1843) (3), *Notocallista multistriata* (Sowerby, 1851) (3), *Limaria orientalis* (A. Adams & Reeve, 1850) (3), *Gari stangeri* (Gray, 1843) (3), *Pecten novaezelandiae* Reeve, 1853 (2).

The October meeting of the Wellington Shell Club was held at the Te Papa Museum, which has the New Zealand national collection of Mollusca. It was a pleasure to see the huge collection of NZ endemic shells, many of which we had not been able to collect and had only seen as pictures or not at all. In addition, we met Bruce Marshall, the resident malacologist and collection manager of Mollusca. Bruce was most gracious and patient with our small group of interested shell collectors, as we looked through much of the museum's collection. In October Alice and I also had the pleasure of meeting Alan Beu, who is a paleontologist and a malacologist with an interest in the family Ranellidae. One afternoon we enjoyed seeing his mollusc collection at the Gracefield Research Centre, Institute of Geological & Nuclear Sciences in Lower Hutt.

As our time in New Zealand was coming to an end, Alice and I began to organize our large collection of New Zealand shells. We spent many long hours cleaning shells, sorting shells, identifying shells, packing shells and giving shells away. As we found more and more shells, many of the ones that we had collected earlier no longer seemed quite as nice. In addition, it was also important to obtain any

necessary shell identification assistance prior to leaving New Zealand, since the local experts would not be available to us back in the U.S.

As a "final fling", Alice and I spent most of our last two weeks in New Zealand on a shell collecting and sightseeing trip to northland with two other Wellington Shell Club members, Jenny Raven and Carolyn Krebs. On our drive north we made a brief stop in Auckland where we found some nice *Pellicaria vermis vermis*, *Purpurocardia purpurata*, *Felaniella zelandica*, *Saccostrea glomerata* and *Dosinia maoriana* along Herne Bay ex Pakiri Beach dredgings. We then drove north to Russell and spent the next ten days shell collecting in the Bay of Islands, Bland Bay, Karikari Peninsula, Aupouri Peninsula and many other places along the way.

Even though it was now mid November, the water in the far north was still too cold for us to do any snorkeling, even with wet suits. Despite this disappointment, it was a sheer delight to wake up each morning and spend many hours with friends collecting intertidal shells at new locations, almost always finding at least a few different species of shells. At Waitangi we found many small shells

in the beach drift, including *Xymene traversi*, *Xymene plebeius*, *Muricopsis mariae*, *Paratrophon quoyi*, *Buccinulum robustum*, *Buccinulum vittatum vittatum*, *Eatoniella flammulata*, *Trichosiris inornatus*, *Strophopoma rosea*, *Taron dubius*, *Micrelenchus dilatatus*, *Micrelenchus sanguineus*, *Neoguraleus sinclairi*, *Neoguraleus lyallensis* and *Rissoina chathamensis*. At Bland Bay we found *Muricopsis octogonus*, *Cellana stellifera*, *Nerita atramentosa*, *Trivia merces*, *Amalda northlandica*, *Mitra carbonaria* (a gift from Jenny Raven), *Haliotis virginea crispata*, *Cominella quoyana quoyana*, *Buccinulum pallidum powelli*, *Bulla quoyii*, *Bulla angasi*, *Notocochlis migratoria* and *Barbatia novaezealandiae*. At Little Taupiri Bay we found some interesting small shells in the beachdrift, including *Mesoginella koma*, *Serrata fasciata* and *Austromitra rubiginosa*. At Taupo Bay we found *Haliotis virginea crispata*, *Xymene ambiguus* and *Cominella quoyana quoyana*. On Urupukapuka Island, which is in the Bay of Islands, we found *Muricopsis mariae*, *Penion sulcatus*, *Daphnella cancellata* and *Dosina crebra*. In addition, Jenny Raven found a nice, large (22 cm) *Charonia lampas*, which she generously gave to us.

In Russell, Alice and I celebrated our 31st wedding anniversary at a nice restaurant with our two good shelling friends. I modestly pointed out to Alice that there were not many husbands who would take their wives half way around the world to celebrate their wedding anniversary, but she was not as impressed as I had hoped. I'm not sure what I will ever be able to do to top that.

After Russell, our group of four shellers stayed several days at a bach adjacent to the home of Bob and Betty Grange, which is on the Aupouri Peninsula, near Pukenui. What a delightful and generous couple! Bob and Betty have an extensive shell collection and many entertaining stories. From their bach, we took day trips to Cape Reinga, Spirits Bay, Parengarenga Harbour, Paxton Point, Kaimaumau and Ninety Mile Beach.

In Parengarenga Harbour we found on intertidal sand/grass many *Cymatium parthenopeum*, which appeared just after the turn of the tide. We also found *Cabestana spengleri*, *Ranella australasia* and more *Charonia lampas* on the rocks. While walking on the intertidal sand flats, I met a young Māori man who was out looking for

octopus for dinner. When he finally spotted a big one under a ledge, he invited me to come over and see it. Although I could not see the octopus under the ledge, I was fairly close when he quickly grabbed the octopus with his bare hand and pulled it from its lair. During the few seconds before it was dead, the octopus sprayed purple ink on everything close. My T-shirt still shows the now faded purple spots.

At the east end of Spirits Bay, we found a number of *Alcithoe arabica* f. *depressa*. On the small island we found in the piles of beachdrift many small shells, including *Mesoginella vailei*, *Micrelenchus rufozonus*, *Pervicacia tristis*, *Xymene traversi* and *Boreoscala zelebori*. At Paxton Point, we climbed over many, large boulders and found a number of nice shells, including *Buccinulum vittatum vittatum*, *Xymene ambiguus*, *Poirieria zelandica*, *Amalda australis* and *Boreoscala zelebori*. Despite finding many interesting shells, we found no species, new for us. At Kaimaumau we found some nice *Maoricrypta costata*, *Calliostoma punctulatum*, *Solemya parkinsonii* and *Glycymeris modesta*. Each shelling location was fun and interesting with a different group of shells. The weather was nice, and the scenery was gorgeous.

The evening prior to leaving Bob & Betty's place, the six of us enjoyed a nice dinner together. Alice and I received several very generous shell gifts from Bob & Betty Grange, including a very nice *Semicassis royana*, a deep water shell (150 meters) that comes from north of Cape Reinga. Although *Calliostoma tigris* is reported to be on intertidal rocks in Parengarenga Harbour, we did not find any specimens. So Bob & Betty gave us a nice specimen. In addition, they gave us two *Adelphotectonica reevei* from Paxton Point, another shell that we did not find, despite carefully searching this area, which is a known location for this shell.

At the end of our northland trip, we spent a day collecting along the beaches of the Karikari Peninsula. We found a number of additional shells, including hundreds of *Zenatia acinaces* and many *Boreoscala zelebori*. In addition, we found some *Cookia sulcata* in excellent condition in a relatively protected habitat. We even found several new (for us) species, including *Pupa kirki*, *Aoteadrilla rawitensis* and *Epitonium tenellum*. Early the following morning we started our 1000 km drive back to Eastbourne followed by 2-3 days to prepare for our trip back to the U.S.

Shells from Northland trip

Top row, left to right: *Charonia lampas* (Linnaeus, 1758) (2), *Ranella australasia* (Perry, 1811) (2), *Cymatium parthenopeum* (Salis Marschlins, 1793) (2), *Cabestana spengleri* (Perry, 1811).

Second row: *Alcithoe arabica* f. *depressa* Suter, 1908 (2), *Dicathais orbita* (Gmelin, 1791) (2), *Muricopsis octogonus* (Quoy & Gaimard, 1833) (2), *Buccinulum pallidum powelli* Ponder, 1971, *Cominella quoyana quoyana* A. Adams, 1854 (2), *Bulla quoyii* Gray, 1843 (2), *Haliotis virginea crispata* Gould, 1847 (3), *Cellana stellifera* (Gmelin, 1791) (2), *Penion sulcatus* (Lamarck, 1816).

Third row: *Dosina crebra* (Hutton, 1873) (2), *Purpurocardia purpurata* (Deshayes, 1854) (2), *Glycymeris modesta* (Angas,



1879) (2), *Barbatia novaezealandiae* (Smith, 1915), *Trochus viridis* (Gmelin, 1791) (2), *Adelphotectonica reevei* (Hanley, 1862) (2), *Trivia merces* (Iredale, 1924) (3), *Mitra carbonaria* Swainson, 1822, *Amalda northlandica* Hart, 1995 (5), *Pupa kirki* (Hutton, 1873), *Maoricrypta costata* (Sowerby, 1824) (2).

Shell gifts, trades and auction winnings

Top row, left to right: *Alcithoe fissurata fissurata* (Dell, 1963), *Alcithoe larochei larochei* Marwick, 1926, *Alcithoe larochei tigrina* Bail, Limpus & Terry, 2005, *Alcithoe pseudolutea* Bail & Limpus, 2005 (2), *Alcithoe jaculoides* Powell, 1924 (2), *Provocator mirabilis* (Finlay, 1926) (2), *Alcithoe flemingi* Dell, 1978, *Alcithoe fusus hedleyi* Murdoch & Suter, 1906, *Alcithoe fusus haurakiensis* (Dell, 1956). **Second row:** *Calliostoma osbornei* Powell, 1926 (2), *Calliostoma blacki* (Powell, 1950), *Calliostoma foveauxanum* (Dell, 1950), *Calliostoma turnerorum* (Powell, 1964), *Calliostoma tigris* (Gmelin, 1791), *Scutellastra kermadecensis* (Pilsbry, 1894), *Semicassia royana* (Iredale, 1914). **Third row:** *Modelia granosa* (Martyn, 1784), *Sigapatella terranova* (Peile, 1924) (2), *Sigapatella superstes* Fleming, 1958 (2), *Poirieria zelandica* (Quoy & Gaimard, 1833), *Mitra carbonaria* Swainson, 1822, *Muricopsis octogonus* (Guoy & Gaimard, 1833), *Rolandiella scotti* Marshall & Burch,



2000, *Prototyphis eos* (Hutton, 1873). **Fourth row:** *Zygochlamys delicatula* (Hutton, 1873) (2), *Mesopeplum convexum* (Quoy & Gaimard, 1835) (2), *Talochlamys gemmulata* (Reeve, 1853) (4), *Anomia trigonopsis* Hutton, 1877.

Packing to fly home was an interesting experience. Although we had previously mailed back to the U.S. a few packages of shells, Alice and I quickly determined that we needed another duffel bag so that each of us would have three checked bags (max 32 Kg), as well as our carry-on bags. In addition to our clothes and the other personal items that we had used during our 5-6 month stay in New Zealand, we had many, many shells, which we estimated to be about 40 kilograms. Then there was the stainless steel dredge that I had purchased. Most of the shells we packed in large, thick-walled Styrofoam containers, which we padded well with our clothes. Most fortunate for us, a Qantas overbooking problem required a last minute change in our airplane flights, which led to us flying home business class and each of us being able to have three checked bags at no extra cost.

Alice and I arrived back home in America just prior to our Thanksgiving holiday. Although we had a few broken shells, most shells (99.9%) arrived in the same condition in which we had packed them. Since prior to leaving New Zealand, we could not completely clean many of our shells from our northland trip, we spent the first several months back home continuing to clean shells and enter them into our shell collection database. Each shell brought back fond memories of our wonderful time in New Zealand. Since arriving back in the U.S. we have had the opportunity to show our New Zealand shells to a number of fellow shell collectors. The most common question we receive is "How many shells did you bring back?" We really cannot answer that question because we never counted the individual shells and have already given away and traded some

of our New Zealand shells. Perhaps a better question to answer is "How many different molluscan species did we bring back?" Since we enter all our shells into our collection database, this is a question that is easier to answer. Including all the shell species that we found and all those that we received as gifts, trades and auction winnings, the total number of different molluscan species that we brought back from New Zealand is 215 and possibly a few more, since there are still a few small shells that we have yet to identify.

Alice and I certainly enjoyed our New Zealand shell collecting adventure. The friendly people, the beautiful country and the many, endemic seashells far exceeded our expectations. Thanks to all who helped to make our time in New Zealand such a wonderful experience.

References:

- LAKEMAN, P.: *Cissy Bay Weekend – A Dredging Trip*. Cookia, Vol 19, pp 12-13, 2007.
- MORLEY, M. S.: *Seashells of New Zealand*, New Holland Publishers (NZ), Ltd., Auckland, 2004.
- ORLIN, Z.: *New Zealand Endemic Mollusks* in American Conchologist, Vol 36, pp 23-25, 2008.
- POWELL, A.W.B.: *New Zealand Mollusca, Marine, Land and Freshwater Shells*, Collins, Auckland, 1979.
- SPENCER, H.G., WILLAN, R.C., MARSHALL, B.A., & MURRAY, T.J.: *Checklist of Recent Mollusca Recorded from the New Zealand Exclusive Economic Zone, 2009*: <http://www.molluscs.otago.ac.nz/index.html>
- SPURGEON, A.: *New Zealand Mollusca*: <http://www.mollusca.co.nz/index.php>

Cymatium parthenopeum (Salis Marschlin, 1793)

by Pat Lakeman

Lorraine Foster joined our Club early in 2007 – she lives near Paraparaumu Beach and regularly walks along it. At Club meetings we are often delighted to see some of the shells that Lorraine finds, and we have seen the results of her collecting during recent years at meetings which have been held at her home. My interest was caught in 2008 by an example of *Cymatium parthenopeum* that Lorraine showed us – I could not recall having seen it on the Kapiti or Horowhenua coasts, and Jenny Raven remarked on it as an unusual find in that area. I reminded myself to look out for it whenever I was collecting there. In early January 2009, during a relatively calm spell of weather, Graham and I found two good, fresh specimens washed up at either end of Kuku Beach.

The common name for *Cymatium parthenopeum* (it also appears in older sources under its synonym, *Monoplex australasiae*) is the hairy trumpet – it is a large sea snail in the family Ranellidae (used to be called Cymatidae) – the tritons. It can be a handsome shell to find, often much more attractive after a good clean. I knew it was not endemic to New Zealand but tended to think (wrongly as it turned out) that it was found only on our northern coasts.

Powell¹ described the distribution of this shell as “North Island. North Cape to Kapiti Island on the west coast & Hawkes Bay on the East Coast. Fossil in the Upper Pleistocene. Also Mediterranean, Naples (type), South Atlantic Islands, South Africa, Bermuda to Rio de Janeiro, Australia, Tasmania, Lord Howe Island & Kermadec Islands. At low tide on reefs amongst brown seaweed, down to about 25 fathoms.” But that was 1979 and I wondered what might have been reported since.

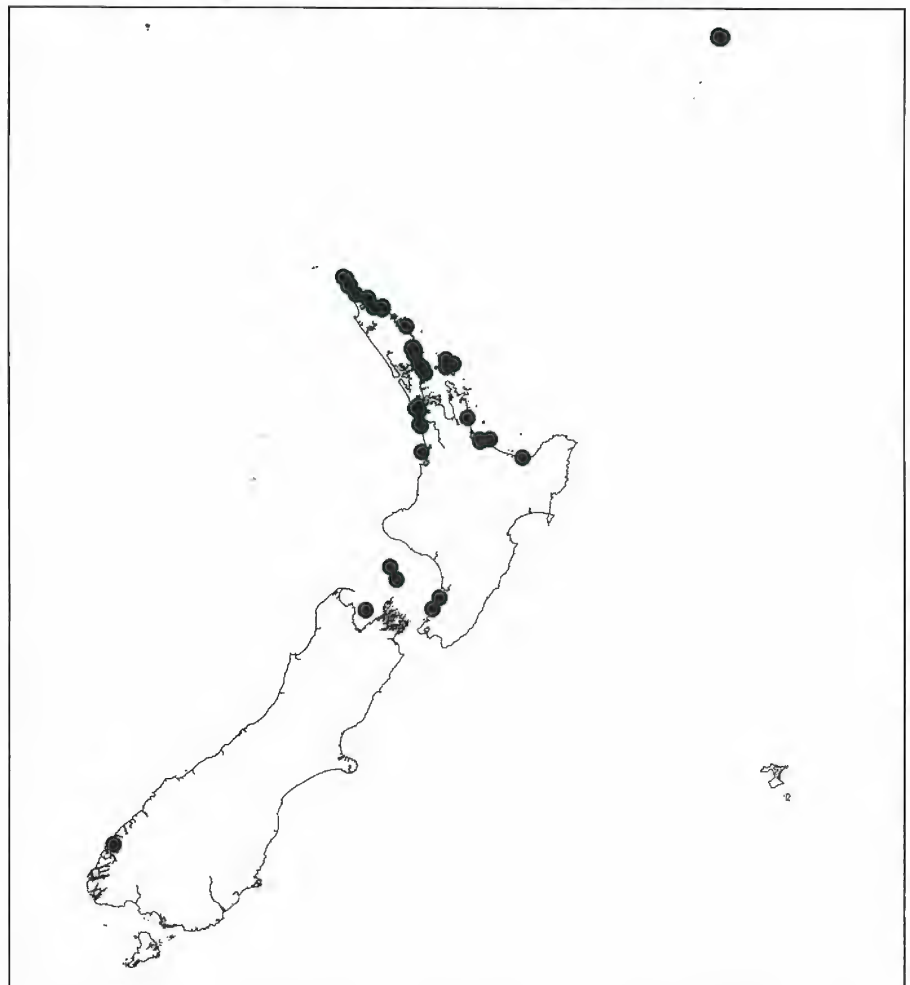
From the NZ Checklist² I could see that Alan Beu had published subsequently on Ranellidae³, and of

course I scanned the internet! I found its distribution described as “Nearly all subtropical and warm temperate seas in both northern and southern hemispheres” and a little further research clarified how this dweller of relatively shallow water comes to be established so widely. Like many species in its family, its wide geographical spread is by virtue of the distribution of its planktonic larvae. Hairy trumpets are notable for having particularly long planktonic periods. The veliger larvae (the stage in its lifecycle when it lives free amongst plankton) remain in the plankton for nearly 300 days, potentially dispersing over hundreds or even thousands of kilometres. This enables dispersal to new regions far removed from the adult molluscs that produced the larvae.

So this is a mollusc that gets around but, when Bruce Marshall showed me the Te Papa distribution map for *Cymatium parthenopeum* in NZ waters, the localities did not include the Kapiti Coast, although Te Papa does hold specimens from further south in Golden Bay and Fiordland. The nearest locality on record was from material trawled off Wanganui. More information was needed here! An appeal to Club members via the newsletter, and conversations with them, revealed the following anecdotal evidence:

- A Club member who had regularly collected as a youngster at Kuku and Waikanae beaches over 30 years ago had never found *Cymatium parthenopeum* back then. He had, however seen a couple at those

Map showing localities for *Cymatium parthenopeum* specimens in the Museum of New Zealand Te Papa Tongarewa (NMNZ) collection, including recently added specimens found on the Kapiti Coast.



Source: Raymond Coory and Bruce Marshall, Museum of New Zealand Te Papa Tongarewa

locations once or twice in 2008, and saw several examples on each of two occasions in early 2009.

- 3-5 days after the “Boxing Day tsunami” in December 2004, about a dozen were found near the Waikanae River mouth.
- A “mouldy and old” example had been found at the Waikanae River mouth in 2007.
- They had been collected at Otaki Beach, north of the Surf Club, in winter 2008.

- In spring 2008, there had been several in wash ups at Waikawa Beach.
- In the last few years, one Club member has seen an example regularly, about twice a year, washed up at the high water line on Paraparaumu Beach near the Waikanae River mouth, and collected two in January 2009 after strong southerlies.

Many thanks to Lorraine for prompting this little investigation and for donating a specimen found at Paraparaumu Beach to the National Collection at Te

Papa. I have also donated a specimen found at Kuku Beach. This is one of the ways that amateur collectors can helpfully add to recorded knowledge.

¹ POWELL, AWB. 1979. *New Zealand Mollusca: Marine, Land and Freshwater Shells*. Collins, Auckland.

² SPENCER, HG, RC WILLAN, BA MARSHALL & TJ MURRAY 2009. Checklist of the Recent Mollusca described from the New Zealand Exclusive Economic Zone.

³ For example: BEU, AG. 1985. A Classification and Catalogue of Living World Ranellidae (=Cymatiidae) and Bursidae. *Conchologists of America Bulletin* 13: 55-66



Cymatium parthenopium

A familiar face at the 2009 NZ Shell Show

by Kris Woods

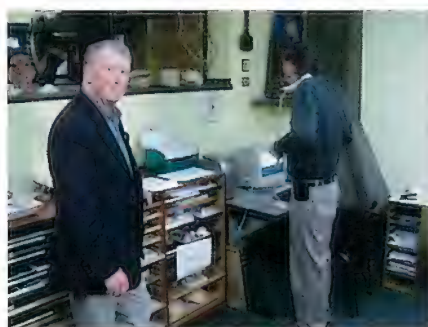
An excellent site on the internet for a shell collector is www.femorale.com. It is a shell business owned by Marcus and Jose Coltro and is based in São Paulo, the largest city in Brazil. I've been visiting this site for about six years now.

In 2005 Roger went to São Paulo on business. He talked about visiting Femorale before he left Wellington but decided that since São Paulo had a population of around 11 million people the chances of him being anywhere near, or even finding the business, would be almost nil. “It would be like finding a needle in a haystack,” thought Roger.

Well, it turns out that he did find that needle. Off he went to Brazil and a few days later the phone went at the unholy hour of two o'clock in the morning. “I'm at Femorale” he announced “and Marcus wants to know what shells you like, here he is”. I had only conversed

with him via emails and I was also very groggy to say the least. This was no time to be stunned though as Marcus was already saying hello. The colleague who accompanied Roger to Femorale was surprised that I was phoned at that hour of the morning so he took a photo of Marcus talking to me.

In March Roger and I went to the 2009 New Zealand Shell Show in Auckland. It was Saturday morning and we were looking at displays. Suddenly I heard Roger saying, “there's Marcus Coltro”.



Roger and Marcus, São Paulo

“Don't be silly” I said “it can't be”. I was quite wrong and Marcus also recognized Roger. I was introduced and within seconds that early morning conversation in 2005 was remembered. It's always good to put faces to names and in this case voices as well.

The Auckland Shell Club was thrilled to have another dealer participating in the show. Many of the Femorale shells were very good quality South American specimens. I couldn't resist buying a large and superb *Voluta ebraea*.



Marcus and Mike Hart, Auckland

Shell Club Trip to Cape Campbell and Marfells Beach, 21-24 August 2009

by Pat Lakeman

Graham and I were on our way to the airport on Friday 21 August when Jenny Raven sent us a text: "I am in Blenheim safe and well. In our unit at the Top 10. Sun is shining. See you later." And indeed the sun did shine, all day as we flew in from Wellington (Jenny, Graham and Pat) and Whakatane (Ann and Derek Crosby), and drove from Christchurch (Kathy Carson and Ann Frengley, Leigh and Jim Crossland), Nelson (Jenny and Bert van Tiggele), and Cissy Bay (Yvonne and Kevin Mead).

Saturday was a bright sunny morning and at about 9am we set off to the coast at Cape Campbell. Landowners had kindly given us permission to use their farm roads to get to the Cape Campbell lighthouse. Though none of it was very fresh, there was a good quantity of washed up material for us to poke through. Amongst it we found a couple of good-sized *Modelia granosa*, several *Haliotis virginea virginea*, plentiful very large *Cookia sulcata* at various stages of wear, *Argobuccinum pustulosum tumidum*, *Irus reflexus* and a small *Ranella australasia*. Several species of limpets were evident in the washup and on the rock platforms, including *Cellana flava*, *C. denticulata*, *C. ornata*, *C. radians* and *Benhamina obliquata*. As the tide dropped to a very good low (-0.8 metres) the big reef was exposed and we could walk out across the mostly weed-covered rock platform to its farthest edges. It remained sunny and calm. Besides many large limpets there were large *Lunella smaragda* in the rock pools and in knee-deep water we were able to find legal size paua (*Haliotis iris*). We were ready to leave at about 3pm and this was very good timing for the several rugby fans amongst us – Tasman were narrowly beaten by Canterbury starting at 4.30pm, then Wellington retained the Ranfurly Shield with a one-point win over Auckland,



Collecting at low tide - Cape Campbell.



Most of the group.

then the stayers really sweated over the All Blacks' last minute, one-point victory over the Wallabies. And it turned out to be Leigh's birthday which, she declared after the AB's game, had been a very good day!

Sunday started with Graham offering "paua for breakfast" which for those who like paua, was delicious. Bert and Jenny left us to make their way home then at about 9.30am the rest of us set off for Marfells Beach. The weather was cloudier and a bit of breeze certainly cooled the coast, but the sea was flat and we were due another very low tide. Wash up material was fairly sparse for Marfells, but Yvonne soon found a lovely fresh *Haliotis virginea virginea*. Other finds at the high tide line included *Irus reflexus* and *I. elegans*, *Protothaca crassicosta*, *Trochus viridis* and *T. tiaratus*, a damaged *Calliostoma pellucidum*, a large *Tucetona laticostata* pair and very large *Cookia sulcata* in quantity. Kevin found a very large *Cabestana spengleri* in good condition for its size, and Derek made a collection of "good garden quality" Cookias. Under the stones which are exposed at one point as the tide goes down were live *Maoricolpus roseus roseus* and, under very smooth stones only, *Notaoacmea elongata*

(previously *N. virescens*, and recently synonymised)¹. Jenny Raven and MaryAgnes Wotton both say that Cape Campbell/Marfells is one of the best areas for good sized, clean and nicely striped specimens of this little limpet.

As the tide dropped we walked out to Mussel Point, at which point you can see the Cape Campbell lighthouse again. Here, at low tide, the rocks were well exposed to a degree that regular visitors amongst us had seen only once or twice before over the years. There was an abundance of mussels – blue, green, black and ribbed varieties (and red mussel shells had been in the wash up material too). Species found live amongst the mussels included *Lepsithais lacunosa*, *Calliostoma punctulatum*, and *Buccinulum vittatum vittatum*, and in sand runnels we found a few live *Buccinulum linea*. Other live finds were *Cantharidus opalus* and *C. purpureus*. Live *Benhamina obliquata* were evident high up at low tide on seaward facing rocks.

From Marfells all dispersed homewards except Derek, Ann, Graham and Pat, who had another night in Blenheim. The four spent a leisurely Monday exploring the coast around the Awatere river mouth, and the Wairau Bar. After lunch and a little relaxation around town in the sunshine, all started their homeward flights later in the afternoon. We had packed quite a bit into our few days and it was particularly nice to get Club members together from widespread home locations!



Modelia granosa

¹ The phylogeny and taxonomy of New Zealand *Notoacmea* and *Patelloida* species (Mollusca: Patellogastropoda: Lottiidae) inferred from DNA sequences. Tomoyuki Nakano, Bruce A Marshall, Martyn Kennedy & Hamish G Spencer. *Molluscan Research* 29(1): 33–59.

Oriental Bay Interlude

by Jill Burnett

If you were looking around Wellington for a good shell collecting beach, Oriental Bay would probably be your last choice. However, if you wanted a flat, sandy beach suitable for exercising a stiff ankle, it's not so bad. The sand isn't real beach sand, of course, but it's handy to the city and I had no intention of even looking at any shells. So it was solely for the purpose of exercise that I started walking along Oriental Bay during 2008, after the summer holiday crowds had dispersed back to work and school. Once I was on the beach, somehow I just gravitated towards the tideline, and one week I noticed a lot of jellyfish washed up, another week there were sea stars, or a heap of seaweed to poke through, and inevitably a few sandy shells got transferred to my pockets – after all, if I didn't take them, the beach groomer would get them. After a few weeks I started carrying plastic bags with me,

and by May I decided I would keep a proper record of what shells were washed up. I had intended to do this for a whole year, or for however long it took for my ankle to come right, but I damaged it again early in December which put paid to that idea, so I decided I might as well write up what I did manage to do. My usual walk was from the children's playground area just past Freyberg pool as far as the steps opposite the end of Grass St, and I was collecting dead, washed up shells from the high tide line. I did see the blue mussel, *Mytilus galloprovincialis*, growing in profusion around the base of the band rotunda, and there were *Diloma aethiops* living on the lower steps which are under water at high tide. I feel that my best finds were *Cyclomactra ovata*, and *Archidoris wellingtonensis*. The *Cyclomactra* was not big, but a complete pair in good condition, while the *Archidoris* was

obviously a fresh washup, and the underneath of it was still a lovely bright orange colour. I also found a single valve of a foreign *Anadara*, very worn, which I can't identify any further and which isn't included in the lists.

Looking over the lists, I think they give rather a misleading impression of how often I found shells on the beach. Many times I arrived there only to find that the beach groomer, a monstrosity our rates are wasted on, had been there before me and left not so much as a little pipi behind. These unprofitable trips are not noted, and in spite of the fact that my main purpose was to exercise my foot, not to collect shells, I still felt very hard done by when this happened. In fact, if I had never found any shells on the beach, I wonder if I would have exercised my foot so diligently!

		8/5	6/6	20/6	1/7	15/7	29/7	1/10	12/11
<i>Glycymeris modesta</i>	new club record		✓						
<i>Mytilus galloprovincialis</i>	live	✓	✓	✓	✓	✓	✓	✓	✓
<i>Perna canaliculus</i>		✓	✓	✓			✓		✓
<i>Aulacomya maoriana</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>Saccostrea glomerata</i>					✓	✓			
<i>Pecten novaezelandiae</i>							✓		
<i>Cyclomactra ovata</i>	new club record		✓						
<i>Crassula aequilatera</i>	new club record	✓						✓	
<i>Paphies australis</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>Paphies subtriangulata</i>	new club record	✓							
<i>Macomona liliana</i>	new club record	✓	✓	✓			✓	✓	✓
<i>Pseudarcopagia disculus</i>							✓		✓
<i>Gari stangeri</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>Soletellina siliquens</i>	new club record	✓						✓	
<i>Austrovenus stutchburyi</i>	new club record	✓	✓	✓	✓	✓	✓	✓	✓
<i>Tawera spissa</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>Dosinia anus</i>	new club record		✓						
<i>Dosinia subrosea</i>	new club record		✓			✓	✓	✓	✓
<i>Ruditapes largillierii</i>		✓	✓	✓	✓	✓	✓	✓	✓
<i>Corbula zelandica</i>	new club record					✓			
<i>Myadora striata</i>	new club record	✓	✓	✓	✓	✓	✓	✓	✓
<i>Cellana radians</i>		✓		✓		✓			✓
<i>Patelloida corticata</i>								✓	
<i>Haliotis iris</i>			✓						
<i>Scutus breviculus</i>	new club record								✓
<i>Diloma bicanaliculata</i>	new club record			✓					
<i>Diloma zelandica</i>			✓	✓	✓			✓	
<i>Diloma aethiops</i>	live	✓	✓	✓	✓	✓	✓	✓	✓
<i>Trochus tiaratus</i>	new club record				✓				
<i>Trochus viridis</i>	new club record		✓		✓				
<i>Lunella smaragda</i>			✓	✓	✓		✓	✓	✓
<i>Sigapatella novaezelandiae</i>	new club record				✓				
<i>Xymene plebeius</i>	new club record			✓					
<i>Archidoris wellingtonensis</i>	new club record							✓	
<i>Siphonaria australis</i>						✓		✓	

Shells from Maketu Beach

by Ian Townsend

In July, Leita and I called at Maketu Beach, that hook of coastline at the east end of Papamoa, and found a nice wash-up. There were literally thousands of *Struthiolaria papulosa*, but we did not find one that had a totally entire protoconch. The wash-up was probably fairly old because there were no rotting bodies; an advantage for the atmosphere of the car later on. However there was a good variety of shells scattered in two main drift lines, so we decided to make a list of what

was there. This is by no means exhaustive, but just what we saw in about an hour of fossicking. It is not difficult to find fifty different shells from a site with a reasonable wash-up, but of course they are not all likely to be in perfect condition. We recorded anything that was recognizable. But then there is always the chance of finding something good. Leita got a nice *Haliotis virginea crispata* and my best find was a good large specimen of *Semicassis labiata*.

So why bother to make a list that is obviously incomplete? For me it is a worthwhile record that can always be added to, and it also served as an exercise in finding my way around more recently accepted nomenclature.

It is also interesting to note that quite a number of our shells were described in the late 1700s – no doubt from collections made by Banks and others during Captain Cook's visit.

List of species seen:

CHITONIDAE

Chiton (Amaurochiton) glaucus Gray, 1828

GLYCYMERIDAE

Glycymeris (Glycymerula) modesta (Angas, 1879)

Tucetona laticostata (Quoy & Gaimard, 1835)

MYTILIDAE

Mytilus galloprovincialis Lamarck, 1819
Perna canaliculus (Gmelin, 1791)
Limnoperna pulex (Lamarck, 1819)

OSTREIDAE

Saccostrea glomerata (Gould, 1850)

PECTINIDAE

Mesopeplum convexum (Quoy & Gaimard, 1835)
Pecten novaezelandiae Reeve, 1853
Talochlamys zelandiae (Gray, 1843)

CARDITIDAE

Purpurocardia purpurata (Deshayes, 1854)

MACTRIDAE

Cyclomactra ovata (Gray, 1843)
Mactra discors Gray, 1843
Spisula aequilatera (Deshayes, 1854)
Resania lanceolata Gray, 1853
Zenatia acinaces (Quoy & Gaimard, 1853)

MESODESMATIDAE

Paphies australis (Gmelin, 1791)

VENERIDAE

Austrovenus stutchburyi (Wood, 1828)
Tawera spissa (Deshayes, 1835)
Dosinia (Austrodosinia) anus (Philippi, 1848)

NACELLIDAE

Cellana radians (Gmelin, 1791)
Cellana stellifera (Gmelin, 1791)

HALIOTIDAE

Haliotis (Paua) iris Gmelin, 1791
Haliotis (Sulculus) virginea crispata Gould, 1847

TROCHIDAE

Cantharidus (Mawhero) purpureus (Gmelin, 1871)
Diloma (Fractarmilla) subrostrata (Gray, 1835)
Zethalia zelandica (Hombron & Jaquinot, 1855)

CALLIOSTOMATIDAE

Calliostoma (Maurea) punctulatum (Martyn, 1784)

TURBINIDAE

Cookia sulcata (Gmelin, 1791)
Lunella smaragda (Gmelin, 1791)

BATILLARIIDAE

Zeacumantus lutulentus (Kiener, 1841)

TURRITELLIDAE

Maoricolpus roseus roseus (Quoy & Gaimard, 1834)

STRUTHIOLARIIDAE

Pellicaria vermis flemingi Neef, 1970
Struthiolaria papulosa (Martyn, 1784)

CALYPTRAEIDAE

Sigapatella novaezelandiae (Lesson, 1830)

CASSIDAE

Semicassis labiata (Perry, 1811)
Semicassis pyrum (Lamarck, 1822)

RANELIDAE

Argobuccinum pustulosum tumidum (Dunker, 1862)
Cabestana spengleri (Perry, 1811)
Cymatium (Monoplex) parthenopeum (Salis Marschlin, 1793)

MURICIDAE

Xymene ambiguus (Philippi, 1844)
Dicathais orbita (Gmelin, 1791)

BUCCINIDAE

Austrofusus glans (Röding, 1798)
Cominella adspersa (Bruguière, 1789)
Cominella (Josephia) glandiformis (Reeve, 1847)
Penion sulcatus (Lamarck, 1816)

VOLUTIDAE

Alcithoe fusus haurakiensis Dell, 1956

OLIVIDAE

Amalda (Baryspira) mucronata (G.B. Sowerby I, 1830)

SIPHONARIIDAE

Siphonaria australis Quoy & Gaimard, 1833

AMPHIBOLIDAE

Amphibola crenata (Gmelin, 1791)

Notes on New Zealand Collected Species

Alcithoe sp

While visiting Waitoetoe Beach, Urenui, northern Taranaki on 1 June 2009, I came across fossils in the blue-grey siltstone cliffs. There were two volutes about 43mm in length. From a photo sent to Dr Alan Beu he commented that they appear to be similar to *Alcithoe gravicosta*, King, and not unlike the living species *Alcithoe wilsonae* (Powell). *Alcithoe* species occur throughout New Zealand in late Miocene-Pliocene rocks.

IAN TOWNSEND



Calliostoma tigris

Swainson, 1822

A recent walk on Himatangi Beach revealed a rare find for the Manawatu/Horowhenua coastline – a small *Calliostoma tigris*. It was in tidy condition considering the exposed location.

LEITA CHRYSTALL



Mitra carbonaria

Swainson, 1822

Mitra carbonaria from Green Point.

KERRY WALTON



Dosinia anus

(Philippi, 1848)

On 9 July 2009, the day before I found my first *Globisinum drewi* (see next page), I found two deformed (freaks as they are sometimes called) *Dosinia anus* specimens. The top specimen (over 33mm) with a deformity that has caused a wave like effect to its profile while the bottom specimen (almost 26mm) has a flat bottom valve with a greater convexity to the top valve to accommodate the body inside.

SELWYN BRACEGIRDLE

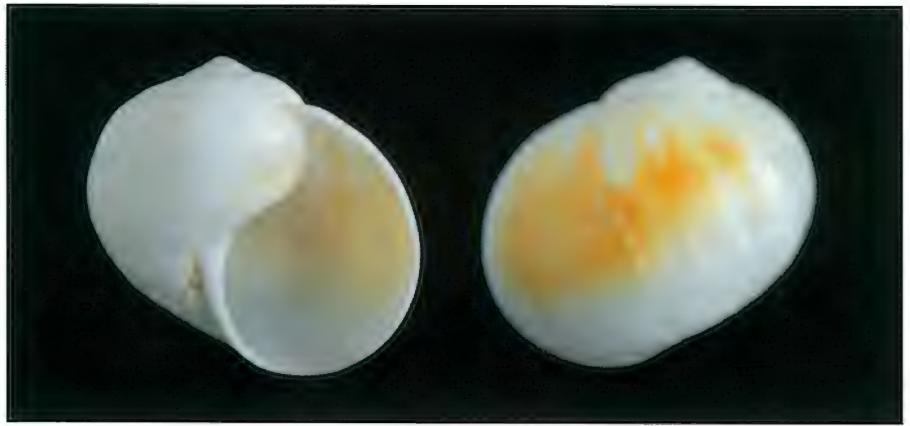


Globisinum drewi

(Murdoch, 1899)

On a beautifully calm 10 July 2009, I had the pleasure of shelling the northern end of Paraparaumu Beach on the Kapiti Coast. Heading south, as I came near to the business part of the suburb, I found my first *Globisinum drewi*. At its widest point it measures approximately 29mm

SELWYN BRACEGIRDLE



Interesting finds around Wellington

by Jenny Raven

I was very surprised this winter to come upon a *Bulla angasi* washed up amongst peat and shell debris on the edge of the Waikanae river mouth. It is quite large for the species being 28mm x 17mm and is of good colour indicating a fresh washup. The species has not previously been recorded on shell lists around Wellington and normally I have only found them on East Coast beaches north of Whangarei. It is a foreign visitor to New Zealand's shores being commonly found around the Pacific and could of course have been thrown away following an overseas holiday. It is curious however to wonder how it arrived at its destination and I would therefore ask other collectors to be on the look out for further southern sightings of this shell.

Another curious find occurred some years ago at Lyall Bay. The beach and rock pools in front of the houses at the south end of the beach often yield interesting shells. On this day the movement of a hermit crab in a pool carrying what appeared to be a bleached *Cominella quoyana* or *nassoides* caught my attention. In the Far North or South of New Zealand this would not merit a second glance but neither species is found in Wellington.

Only *Cominella maculosa* and *C. virgata* are commonly found in the Lyall Bay area and this was definitely not one of these. The shell has since been identified as *Cominella elegantula marlboroughensis* Powell, 1946 which is rarely seen generally being confined to the deep waters of Cook Strait and

Marlborough. Whilst Lyall Bay is situated on the boundary of Cook Strait, the beach is relatively shallow and a long way from the depths this shell normally inhabits. This species has not previously been recorded on the Wellington Shell Club lists. I was lucky in this case that some knowledge of the habits of the *Cominella* Family enabled me to find this shell. It measures 27mm x 14mm.

Last year I reported on a *Zeacolpus vittatus* I found washed up on Pekapeka Beach. This year I found another on the adjacent beach at Waikanae. It pays to look closely at all *Maoricolpus roseus* washed up on these beaches; if narrower and striped it could be *Zeacolpus vittatus*.



Bulla angasi



Cominella elegantula marlboroughensis

Early Shell Collectors in Jamaica

by Mary Agnes Wotton

My recent foray into researching family genealogy threw up a name with shell collecting connotations that prompted me to look further – an early collector whose passion for all things natural started one of the largest collections ever known – Sir Hans Sloane. His collection of molluscs, apart from forming the basis of the present National Collection of Mollusca in the British Museum of Natural History, has strong associations with Linnaeus, Gmelin and Lamarck.

His name appeared in a narrative about my ancestors “The Andersons of Jamaica” written by my newly discovered Australian relative who had researched and documented the family on both sides of my maternal great great grandparents. Sir Hans Sloane’s name appeared in relation to his marriage to Elizabeth Langley whom he had met in Jamaica, the widow of a wealthy Jamaican planter, Dr. Fulke Rose, related on the female side of the Anderson family. In addition it was noted that Hans Sloane and his wife were great personal friends of another of my ancestors, Dr. James Welwood. Both Sloane and Welwood were members of the Royal College of Physicians.

Sir Hans Sloane was an eminent British physician, an ardent collector not only of shells but of other natural curiosities. He was elected a Fellow of the Royal Society in 1685 because of his interest in all things of “science”. He went to Jamaica in 1687 as personal physician to the new Governor, Charles Monck, 2nd Duke of Albermarle. His interest in zoology provided an incentive for him to undertake the journey. A copy of Martin Lister’s book on shells in the British Museum bears the inscription ‘For his honoured Friend Dr. Hans Sloane. M.L. He is desired to collect & transmit hither ye Land snails, & such shells as shall be found in ye Fresh

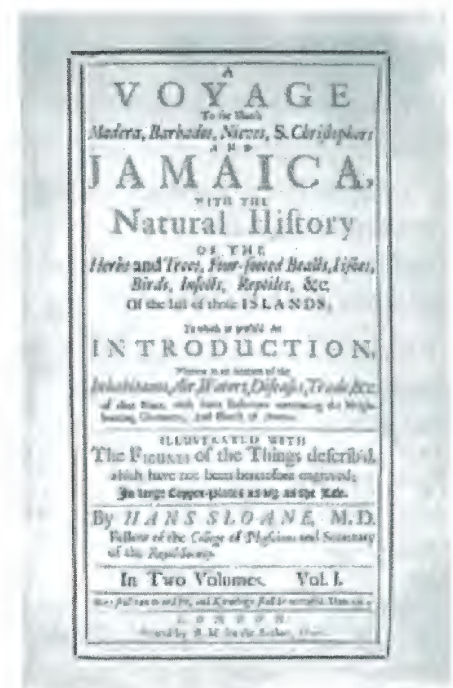
water rivers or ponds of Jamaica; with will verie much oblige his most humble servant Martin Lister. Also to observe whether there are any naked snailes in Jamaica. I meane such as are naturallie without shells at Land as with us.’

The Duke’s ship landed at Port Royal, situated at the end of a sandspit (the Palisadoes), separating the Caribbean from the deep-water Kingston Harbour and a base for scores of privateers and pirates. Only 5 years after Sloane’s visit, a massive earthquake caused most of Port Royal to sink into the sea leaving only about 25 of its original 60 acres. Sloane was based in the capital Spanish Town, which was the residence of the Governor. Sloane’s zoological collections were essentially started with the vast amount of material he brought back from Jamaica.

However, few specimens of this collection can now be traced with the exception of his collection of shells which was extensive. The collection contained, in addition to his Jamaican species, specimens found by William Dampier on his voyage round the world, shells sent by Handisyde from the Straits of Magellan, and many others from remote parts of the world. Several of these were the originals from which figures were published by Martin Lister and James Petiver; some of these were referred to by Linnaeus, Gmelin and Lamarck in their synonymies.

Unfortunately the Duke of Albermarle died in 1689 so Sloane’s time in Jamaica was relatively short-lived. However, during this period he travelled extensively around the island making notes on all manner of things including the local flora and fauna. He studied and observed these in ways he would never again be able to, eventually compiling a massive collection of specimens. Ocho Rios on the north coast was one of the places he visited on his travels. Virtually the

entire shoreline of Ocho Rios is fringed by reefs and was probably one of the richest areas for marine molluscs in Jamaica. When he returned to England with the Duke’s widow, his collection was the first to be brought to England from the Caribbean and was one of the world’s most significant natural history collections.



In 1707 he published the first volume, mainly of plants, of his book on the natural history of Jamaica including visits to a few of the other West Indian islands: “A Voyage to the islands of Madera, Barbados, Nieves, St. Christopher and Jamaica”. The second volume which included Jamaican zoology, did not appear until 1725. “Testacea or Shells and their parts, both natural, found at Sea and Land, and or Fossil” are covered in Book III Part II. Chapter I dealt with Land and River shells and Chapter II covered “Patella or Limpets” wherein 12 species are described with reference to Lister’s “Historia Conchyliorum”. His locality data was simply “I found it on the Shoars (or Shores) of Jamaica”. There was only one reference to a “Don

Christopher's Cove" of which there are two localities with that name on Jamaica's north coast, one near St. Ann's Bay between Ocho Rios and Discovery Bay, the other in St. Mary's parish to the east. Another reference was to a "nerite" collected from a river "flowing into Port Royal Harbour". Other species mentioned, each family in a separate chapter, were the "Conchs, Nerites, Sea Snails and Trochii, Buccina", the latter covered in three chapters depending on the size of the spire, and Bivalves. Although his primary interest was botany, he brought approximately 6,000 shells back from his sojourn in Jamaica including land snails.

Some shells named for Hans Sloane are:

Solen sloanii Gray in Handley, 1842
(Bivalvia - Solenidae)
Distribution – China, Taiwan, Japan, Indonesia and East Africa

Veronicella sloanii (Cuvier, 1817)
(Gastropoda – Pulmonata -Land)
Distribution North America

Species of Cephalopoda and Arthropoda have also been named for Sloane.

Sloane's house in Bloomsbury housed his collections and became a private museum that, because of the reputation which it enjoyed among foreigners, was visited by many famous people including Linnaeus. Sloane at last decided to retire when he was over eighty years old and moved himself and all his collections to his Manor House in Chelsea. His will stated that his museum was to be placed in the care of trustees who were to offer his collection to the King for the nation provided that the sum of 20,000 pounds was paid to his two daughters. Funds from a lottery were used to purchase his collection in the year of his death, 1753, and by an Act of Parliament in June of the same year, the British Museum was established. A century later its collections were transferred to the new British Natural History Museum in South Kensington, Sloane's Jamaican collection, in many ways, its original nucleus.

Because his name appears after so many Jamaican shells, more than either Linnaeus, Gmelin or Lamarck, C. B. Adams was another collector to pique my interest. He was a noted 19th century American malacologist and was the next to make extensive collections in Jamaica a century and a half after Sloane. Unlike Hans Sloane, he was both collector and scientist. Charles Baker Adams was one of a group, and probably the most important, of malacologists interested in the West Indies during the middle of the 19th century. Like Sloane, Adams was interested in natural history from an early age. He was Lecturer on Geology at Bradford Academy, Massachusetts and later Professor of Chemistry and Natural History at Middlebury College, Vermont where he began building up a college museum. He also performed the duties of State Geologist of Vermont. In 1847 he was appointed Professor of Zoology and Astronomy at Amherst College, Massachusetts and apparently dropped his interest in geology and began concentrating on the study of molluscs.

At the time of Adams' first visit to Jamaica in 1843-44, comparatively little was known about the astonishing richness of its molluscs, especially land shells. Though much material had reached Europe, it had been collected mainly by persons interested in other fields and locality data was both limited and, in many cases, incorrect. This complicated his early studies of the Jamaican marine molluscs of which he had collected about 500 species.



*Vexillum
albocinctum*
C. B. Adams

In 1845 he published his first paper on Jamaican molluscs and returned there in 1848-49. Adams also made a trip to Panama in the winter of 1850, returning by way of Jamaica the following spring. Anxious to pursue further his investigations on the molluscan fauna of the West Indian islands, he left for St. Thomas in the Virgin Islands group in 1852 where he was stricken with malaria or yellow fever as reports differed. He died in January 1853 at the comparatively young age of 39. In 1950, Clench & Turner in Harvard University's Museum of Comparative Zoology's "Occasional Papers on Mollusks", published Adams' "Original Descriptions of the Western Atlantic Marine Mollusks" which was dominated by his findings from Jamaica.



Tectura tenera
C. B. Adams

Adams realised that the task he had set himself would take many years to finish and as a consequence, his descriptions of new species were very brief with few or no figures. This was to be a preliminary work with a complete monograph to be issued at a later date. It is interesting to note that in this paper the only locality named for the species collected there, with a few exceptions, was "Jamaica", the exception being Kingston Harbour for some. Adams seldom gave specific locality data. Occasionally his labels carried more information as to locality than his published record, but these were infrequent. Descriptions of many new species including land snails found in Jamaica were published in various journals but mainly in "Contributions to Conchology" privately published by Adams.

C. B. Adams' obituary in the New York Times states: "In several visits which he had made to Jamaica, he had thoroughly studied the marine, fluviatile and terrestrial molluscs of that island, and enriched its Fauna by the publication of several hundred new species." Adams' collection finally ended up at the Museum of Comparative Zoology, Harvard University, in 1942 after being stored at Amherst College for nearly ninety years. The collection suffered very little during this time but a few of the very small types have been lost. Many of Adams' species remain completely unknown. The following shells have been named for him:

Eulithidium adamsi (Philippi, 1853) (Gastropoda: Trochidae). Adams originally listed this species under its synonym *Phasianella brevis* in his "Original Descriptions of the Western Atlantic Marine Mollusks" but the Types were among those lost.

Crassispira adamsi Jong & Coomans, 1988 (Gastropoda: Turridae). This species was another described by Adams under its synonym *Pleurotoma elatior*.

Seila adamsii (H. C. Lea, 1845) (Gastropoda: Cerithiopsidae) – Adams' synonyms for this species *Cerithium terebrale* / *Bittium terebralis* / *Cerithiopsis terebellum*

Cyroturris adamsi (E. A. Smith, 1884) (Gastropoda: Turridae)

Among others are:

Macromphalina adamsii (P. Fischer, 1857) (Gastropoda: Vitrinellidae)

Pyramidella adamsi Carpenter, 1864 (Gastropoda: Pyramidellidae)

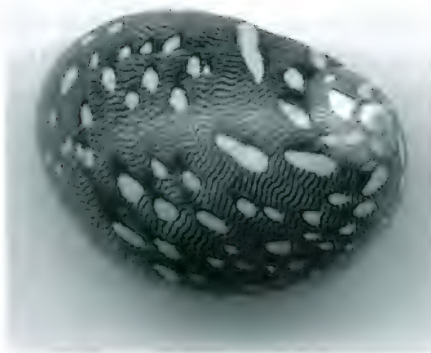
Finella adamsi (Dall, 1889) (Gastropoda: Cerithiidae)

Arcopsis adamsi Dall, 1886 (Bivalvia: Arcidae)

Nucinella adamsi (Dall, 1898) (Bivalvia: Manzanellidae)

Pseudohinnites adamsi (Dall, 1886) (Bivalvia: Pectinidae)

By accident, I came across Charles T. Simpson's account of his collecting



Neritina virginea



trip to Jamaica in December 1894, giving a vivid description of the perils of collecting in the tropics. "As our stay was to be limited to some three weeks, we (himself and Mr. John B. Henderson, Jr. of Washington) were anxious to begin work at once, to actually put our hands on some of the land snails in their homes. We hired a cab with a good natured darkey for a driver, and a miserable, little, bony horse, of uncertain color, and started for the suburbs, in the direction of Rockport (present day Rockfort east of Kingston en route to the Palisadoes) with our eyes strained to catch sight of the splendid *Orthalicus undatus*, which we were told we might find on our way. The poor little horse, which wobbled about first from one side of the road to the other as if in search of snails, but probably from sheer exhaustion, was suddenly brought to a standstill without much exertion by the driver, who exclaimed as he pointed his whip to some low trees on the south of the road "Da de snail you want massa." Their enthusiastic and excited dash into the scrub did not take into account the resulting agony "... an hour afterward we were as wet with perspiration as though we had been dipped in water, and covered with every description of sticking burrs; our flesh was lacerated, and our hands dirty and bleeding, for everything in the scrub bears villainous thorns. On the debtor side we had ruined two suits of clothes, and to our credit could be placed over five hundred superb living *Orthalicus*."

During their stay they drove around the entire island, visiting every parish but the results were disappointing due

to the illness of their driver and the almost incessant rains encountered on the north side of the island. They found almost no marine species.

"Occasionally on the rocky beaches we obtained *Neritina virginea*, a few *Littorinas*, *Tectarius* and *Neritinas*, but for miles, in fact along whole parishes, though the road ran near to the sea, and we watched closely, not even a valve was seen." The lack of marine species was made up for by the abundance of land snails and in some cases, fresh water species. Large numbers of shells of several species, both alive and dead, were collected by Simpson.

In his search for "the great white *Helix aspera*" (Common Garden Snail) he ended up tramping 7 miles from his hotel to a likely looking knoll, finding so many that "they lay thickly all around me, bright and fresh, with the animals nicely cleared out by tropic showers, the sun and swarming insects. I hardly dared move for fear of stepping on them, and to calm my excitement, and assure myself that it was not all a wild conchologist's dream, I stood still and tried to count a hundred, but when I had got to twenty I saw half a dozen live ones clinging like a string of enormous white beads to a little shrub right beside me and I quit counting and gathered them in." On this small piece of land, in a few hours, he collected over thirty species of land snails. His conclusion "To my dying day I never expect again to see such collecting unless I revisit Jamaica." Although Simpson referred to *Helix aspera*, it does not appear on present day lists of Jamaican land snails although several

other species of *Helix* have been referred to synonymy.

Charles Simpson became Curator of Molluscs at the United States National Museum in Washington (Smithsonian) in 1899. He was on the staff until 1902 and eventually retired to Florida where he became known as a conservationist and gained the nickname “The Sage of Biscayne Bay” (Miami).

A total of 562 species of snails and slugs are known from Jamaica of which 90% are endemic and many are operculate. Regarding marine shells, R. Tucker Abbott, the noted American conchologist and malacologist, in his book “Caribbean Seashells” stated

“Jamaica has a rich shell fauna and it is believed that over 1000 species will eventually be found in her waters.” His book, however, was based on species collected in Puerto Rico. Michael Humfrey’s “Sea Shells of the West Indies” based mainly on collecting in Jamaica where he lived for many years, lists 850 species with only those adults measuring more than 12 mm described and occurring at “depths not greater than 35 fathoms”. By comparison, The Academy of Natural Sciences, Philadelphia, lists only 647 species with distribution records in Jamaica in “Malacolog”, their database of Western Atlantic Marine Mollusca.

Jamaica is regarded as the centre of marine species diversity of the Caribbean region. Its reefs are still the most species-rich in the Caribbean in spite of being seriously degraded near developed shores, with the greatest damage to those on the north coast where the shallow, close to shore reefs around Ocho Rios have been subject to the effects of hurricanes over the past decades. They were also affected by dredging in the 1960s to enlarge the harbour at Ocho Rios and reclaim its white sand beach for tourism purposes.

REFERENCES

- ANDERSON, W. L. 2006: “*The Andersons of Cavaliers Pen and Their Jamaican Ancestors*” Private research.
- BLAND, T. 1865: Memoir of Charles B. Adams, Late Professor of Zoology in Amherst College, Massachusetts. *American Journal of Conchology* 1(3): pp. 191-204
- CLENCH, W. J.; TURNER, R.D. 1950: The Western Atlantic Marine Mollusks described by C. B. Adams. *Occasional Papers on Mollusks* (The Department of Mollusks, Museum of Comparative Zoology, Harvard University). 1 (15): pp. 233-403, pls. 28-49.
- DALL, W. H. 1888: Some American Conchologists *Proceedings of the Biological Society of Washington* 4: pp. 123-126
- DE BEER, G. R. 1953: *Sir Hans Sloane and the British Museum*. London, New York: Published for the Trustees of the British Museum by Oxford University Press. Pp. 192. illus. ports.
- HUMFREY, M. 1975: *Seashells of the West Indies. A guide to the marine molluscs of the Caribbean*. New York: Taplinger Publishing Co. pp. 1-352, figs/ 1-20, pls. 1032 [also London, Collins].
- JAMAICA GLEANER, THE 2002: Pieces of the Past
- NEW YORK TIMES, THE 1853: Obituary published Feb. 1, 1853. *Online*
- RICE, T. Sir Hans Sloane’s Voyage to Jamaica *Natural History Museum Online*
- ROSENBERG, G. 2005: *Malacolog 4.1.0 A Database of Western Atlantic Marine Mollusca Online*
- ROSENBERG, G. & MURATOV, I. V. 2006: *Status Report on the Terrestrial Molluscs of Jamaica*. Academy of Natural Sciences of Philadelphia 155 (1): 117-161
- SIMPSON, C. T. 1894: *Notes on collecting shells in Jamaica* The Nautilus Vol. 7 No.10 Jan. 30, 1894, 110-113
- SLOANE, H. Sir 1725: *A Voyage to the Islands of Madera, Barbados, Nieves, St. Christopher and Jamaica*. pp 231-266 (Rare book held in the Turnbull Collection, National Library of New Zealand)
- WARMKE, G. L.; ABBOTT, R. T. 1961: *Caribbean Seashells. A guide to the marine mollusks of Puerto Rico and other West Indian islands, Bermuda and the Lower Florida Keys*. Narbeth, Penn: Livingston Publishing Company. Pp. x, 348, text figs. 1-34, pls. 1-4, 19 maps [also 1975, New York: Dover Publications, pp xx, 348].
- WILKINS, G. L. 1952: The Shell Collections of Sir Hans Sloane, Bart. (1660-1753), *The Journal of Conchology* 23 (8) pp.247-259

Wellington Shell Club 2008-2009

President: Jenny Raven

Vice Presidents: Doreen Burr, Selwyn Bracegirdle

Secretary: Deirdre Standish • Email: deirdre.standish@clear.net.nz • Telephone 04 904 1080

Treasurer: Jenny Walton • PO Box 40685, Upper Hutt • Telephone 528 5618

Editor: Selwyn Bracegirdle • 7 Astor Street, Karori, Wellington • Email: creatus@paradise.net.nz • Telephone: 973 9410

Newsletter: Jill Burnet • 84 Brougham Street, Mt Victoria, Wellington • Telephone: 384 7418

Librarian: Pat Lakeman

Sales table and raffles: Kris Woods

Website: Jenny Walton • www.clublist.co.nz/Club_Websites/Wellington_Shell_Club.aspx

2008 Membership Fees: Single \$15 • Family \$20 • Overseas \$30

Cookia Contributions

Members and other readers are invited to submit contributions (handwritten, typed or electronic) but, preferably, these should be in the Editor's hand before the end of May for inclusion in that year's issue (look at a recent issue to see the style to follow).

Please use (unless there is a stated reason not to do so given in your manuscript) the molluscan names in the Checklist of New Zealand Living Mollusca by Spencer, H.G., Willan R.C., and Marshall B.A., which can be viewed at

<http://www.molluscs.otago.ac.nz/index.html>

Authors should also save the editor work by checking the spelling of these names very carefully. Following standard practice, in long lists of species the species names should NOT be listed in alphabetical order but in systematic sequence (with Family headings) as in the 'Checklist'. Bruce Marshall, our 'resident malacologist', is very willing to check identifications or species names for any members who would like his help. Please take advantage of this generous offer. Also note: the Mollusca Section library at the Museum of New Zealand Te Papa Tongarewa is the most comprehensive collection of the world literature on Mollusca in the country.

The Editor is always happy to discuss proposed contributions with members.

Wellington Shell Club Publications

Cookia is the journal of the Wellington Shell Club and is published annually, containing articles and smaller items of interest on shells, shell collecting, and molluscs as well as other related marine topics.

Cookia was first published in 1976; prior to this the Club published a *Circular*, then a *Bulletin*, as well as occasional *Study Notes* on various families of Mollusca.

PUBLICATIONS TO DATE

1956–1965 *Circular* 1 to 21

1967–1975 *Bulletin* 1 to 36

1976–1977 *Cookia* Volume 1, Nos 1, 2, 3

1977–1978 *Cookia* Volume 2, Nos 1, 2, 3

1979–1980 *Cookia* Volume 3, Nos 1, 2, 3

1980–1981 *Cookia* Volume 4, Nos 1, 2, 3

1982–1984 *Cookia* Volume 5, Nos 1, 2, 3, 4

1985–1992 *Cookia* Volume 6, Nos 1, 2, 3, 4

1993–1996 *Cookia* Volume 7, Nos 1, 2, 3, 4 [Index]

1997 *Cookia* Volume 8

1998 *Cookia* Volume 9

1999 *Cookia* Volume 10

2000 *Cookia* Volume 11

2001 *Cookia* Volume 12

2002 *Cookia* Volume 13

2003 *Cookia* Volume 14 [The Shell Lists]

2003 *Cookia* Volume 15

2004 *Cookia* Volume 16

2005 *Cookia* Volume 17

2006 *Cookia* Volume 18

2007 *Cookia* Volume 19

2008 *Cookia* Volume 20

(*Cookia* Volume 7, No 4, is an index of all articles in the Club's publications to 1996)

BACK ISSUES

Back issues of *Cookia* are available at cost plus postage; individual articles, and copies of the Bulletins, Circulars and Study Notes can be ordered at 10c per page plus postage, from Jill Burnet, 84 Brougham Street, Mt Victoria, Wellington, New Zealand; or see our homepage at www.clublist.co.nz/Club_Websites/Wellington_Shell_Club.aspx

FOREIGN AFFAIRS – HOW WELL DO YOU KNOW THE SHELL? ANSWERS

1 – Veneridae – *Bassina disjuncta* • 2 – Cassidae – *Cypuraecassis rufa* • 3 – Conidae – *Conus textile*
4 – Cypraeaidae – *Cypura tigris* • 5 – Eptionitidae – *Eptionitium scalare* • 6 – Marginellidae – *Marginitella desjardini*
7 – Strombidae – *Strombus crocata* • 8 – Tonniidae – *Tonna perdit* • 9 – Volutidae – *Cymbiola vesperitilo*

Foreign affairs – how well do you know the shell?

Identify the nine Indo-Pacific shells below – family and species. Answers are on page twenty eight.

